

DAFTAR PUSTAKA

- Abbas,G., Murtaza,B., Bibi, I., Syahid, M., Niazi, N.K., Khan, M.I., Amjad, M., Hussain, M.and Natasaha. 2018. Arsenic uptake, toxicity, detoxification, and speciation in plants: physiological, biochemical, and molecular aspects. *International Journal of Environmental Research and Public Health*, 15(59):1-45
- Adamski, J. 2016. Key elements of metabolomics in the study of biomarkers of diabetes. *Diabetologia* 59:2497–2502
DOI 10.1007/s00125-016-4044-y
- Agnol, R.F.D., Plotegher, F., Souza, R.C., Mendes, J.C., Junior, F.B.D.R., Bena, G., Moulin, L., and Hungria, M. 2016. *Paraburkholderia nodosa* is the main N₂-fixing species trapped by promiscuous common bean (*Phaseolus vulgaris* L.) in The Brazilian “Cerradao”. *FEMS Microbiology Ecology*, 92(8), 1-14
- Agus, C., Wulandari, D., Primananda, E., Hendrayani, A., and Harianja, V. 2017. The Role of Soil Amendment on Tropical Post Tin Mining Area in Bangka Island Indonesia for Dignified and Sustainable Environment and Life. In Proceeding of 2nd International Conference on Green Energy Technology (ICGET 2017). IOP Conf. Series: Earth and Environmental Science 83 (2017) 012030, pp 1-8. doi :10.1088/1755-1315/83/1/012030
- Ahalya, N., Ramachandra, T.V., and Kanamadi, R.D. 2003. Biosorption of heavy metals. *Research Journal of Chemistry and Environment*, 7(4): 71-79
- Ahemad, M. Remediation of metalliferous soils through the heavy metal resistant plant growth promoting bacteria: Paradigms and prospects. *Arabian Journal & Chemistry*, 2: 1365-1377
- Ai, H., Wu, D., Li,C. and Hou, M. 2022. Advances in molecular mechanisms underlying cadmium uptake and translocation in rice. *Frontiers in Plant Science*, 13(1003953):1-11. doi: 10.3389/fpls.2022.1003953
- Ai, N.S. dan Banyo, Y. 2011. Konsentrasi klorofil daun sebagai indikator kekurangan air pada tanaman. *Jurnal Ilmiah Sains*, 11(12):164-173
- Aide, M., Beighley D. and Dunn, D. 2016. Arsenic In The Soil Environment: A Soil Chemistry Review. *International Journal of Applied Agricultural Research*, 11(1)1: 1-28
- Albanese, S., Sadeghi, M., Lima, A., Cicchella, D., Dinelli, E., Valera, P., Falconi, M., Demetriades, A., and Vivo, B. 2015. GEMAS: cobalt, Cr, Cu and Ni distribution in agricultural and grazing land soil of Europe. *Journal of Geochemical Exploration*, 154 (2015): 81–93

- Alejandro, S., Cailliatte, R., Alcon, C., Dirick, L., Domergue, F., Correia, D., Castaongs, L., Briat, J.F., Mari, S., and Curie, C. 2017. Intracellular distribution of manganese by the trans-Golgi network transporter NRAMP2 is critical for photosynthesis and cellular redox homeostasis. *The Plant Cell*, 29(12): 3068–3084. doi: 10.1105/tpc.17.00578
- Alejandro,S., Höller, S., Meier, B., and Peiter, E. 2020. Manganese in plants: from acquisition to subcellular- allocation. *Frontiers in Plant Science*, 11(300): 1-23. doi: 10.3389/fpls.2020.00300
- Ali, H., Khan, E., and Ilahi, I. 2019. Review article environmental chemistry and ecotoxicology of hazardous heavy metals: environmental persistence, toxicity, and bioaccumulation. *Journal of Chemistry*, 4(10): 1-14, <https://doi.org/10.1155/2019/6730305>
- Alloway, B.J. 1995. Heavy Metals in Soil. Blackie Academic & Professional, London, UK, , 2nd Editions
- Alloway, B.J. 2009. Soil factors associated with zinc deficiency in crops and humans. *Environmental Geochemistry and Health*, 31(5):537–548.
- Al-Mu'min, M.I., Joy, B., and Yuniantri, A. 2016. Dinamika Kalium tanah dan hasil padi sawah (*Oryza sativa* L.) akibat pemberian NPK majemuk dan penggenangan pada fluvaquentic epiaquepts. *Soilrens*, 14(1): 11-15
- Al-qahtani, K.M. 2012. Assessment of heavy metals accumulation in native plant species from contaminated soils in Riyadh City, Saudi Arabia. *Life Science Journal*, 9(2): 384-392.
- Ameh, T. and Sayes, C.M., 2019. The potential exposure and hazards of copper nanoparticles: a review. *Environmental Toxicology and Pharmacology*, 71(103220):1-8
- Amelia, D., Salim, E.H., dan Mulyani, O. 2017. Pengaruh kombinasi pupuk hara mikro cair dengan N,P,K terhadap kadar cobalt dan hasil tanaman jagung (*Zea mays* L.) ‘Pioneer 12‘ pada fluventic eutrudepts. *Soilrens*, 15(2):26-32
- Aminah, U. and Nur, F. 2018. Biosorption of heavy metal lead (Pb) by bacteria. *Jurnal Teknosains*, 12(1), 50-70
- An Coorevits, Logan, N.A., Dinsdale, A.E., Halket, G., Scheldeman, P., Heyndrickx, M., Schumann, P., Van Landschoot, A., and De Vos, P. 2011. *Bacillus thermolactis* sp. nov. Isolated from dairy farms, and emended description of *Bacillus thermoamylovorans*. *International Journal of Systematic and Evolutionary Microbiology*, 61(2011), 1954-1961. Doi: 10.1099/ijs.0.0248240-0
- Andjelkovic, K.M., Djordjevic, A.B., Antonijevic, E., Antonijevic, A., Stanic, M., Koturstevuljevic, J., Kalimanovska, V.S., Jovanovic, M., Boricic, N., Wallace, D., and Bulat, Z. 2019. Toxic effect of acute cadmium and lead

- exposure in rat blood, liver, and kidney. *International Journal of Environmental Research and Public Health*, 16(274):1-21
doi:10.3390/ijerph16020274
- Ang, L.H., Tang, L.K., Ho, W.H., Hui, T.F., and Theseira, G.W. 2010. Phytoremediation of Cd and Pb by four tropical timber species grown on an ex-tin mine in Peninsular Malaysia. *International Scholarly and Scientific Research & Innovation* 4(2):70-74.
- Anyanwu, O.B., Ezejiofor, A.N., Igweze, Z.N., and Orisakwe, O.E. 2018. Review heavy metal mixture exposure and effects in developing nations: an update. *Toxics*, 6(65):1-32, doi:10.3390/toxics6040065
- Ashraf, M.A., Maah, M.J., and Yusoff, I.B. 2010. Study of Water quality and heavy metals in soil & water of ex-mining Area Bestari Jaya, Peninsular Malaysia. *International Journal of Basic & Applied Sciences IJBAS-IJENS* 10 (03): 7-27.
- Arena, C., Conti, S., Francesca, S., Melchionna, G., H'ajek, J., Bart'ak, M., Barone, A. and Rigano, M.M., 2020. Eco-physiological screening of different tomato genotypes in response to high temperatures: a combined field-to-laboratory approach. *Plants*, 9(508):1-16.
<https://doi.org/10.3390/plants9040508>.
- Artiningsih, A., Zubair, H., Imran, A.M., and Widodo, S. 2020. Distribution of manganese heavy metal (Mn) in soil around of antang landfill, Makassar City, Indonesia. *IOP Conference Series: Earth and Environmental Science*. 473 (1):1-10. doi:10.1088/1755-1315/473/1/012088
- Arulmathi, C. and Porkodi, G. 2020. Characteristics of coastal saline soil and their management: a review. *International Journal of Current Microbiology and Applied Sciences*, 9(10): 1726-1734.
<https://doi.org/10.20546/ijcmas.2020.910.209>
- Ashraf, M.A., Maah, M.J., and Yusoff, I.B. 2011. Heavy metals accumulation in plants growing in ex tin mining catchment. *International Journal of Environmental Science and Technology*, 8 (2): 401-416.
- Asmarhansyah, Badayos, R.B., Sanchez, P.B., Sta Cruz, P.C., and Florece, LM. 2017. Land suitability evaluation of abandoned tin-mining areas for agricultural development in Bangka Island, Indonesia. *Journal of Degraded And Mining Lands Management*. 4(4):907-918, DOI:10.15243/jdmlm.2017.044.907
- Asril, M dan Lisafitri, Y. 2020. Isolasi bakteri pelarut fosfat genus *Pseudomonas* dari tanah masam bekas areal perkebunan karet di Kawasan Institut Teknologi Sumatera. *Jurnal Teknologi Lingkungan*, 21(1): 40-48

- Azubuikwe, C.C., Chikere, C.B., and Okpokwasili, G.C. 2016. Bioremediation techniques—classification based on site of application: principles, advantages, limitations and prospects. *World Journal of Microbiology and Biotechnology*, 32 (180):1-18.
- BacDive. 2017. *Bacillus fordii*. Doi. 10.13145/bacdive1221.20170829.2
- Bachtiar, T., Hanani, M., Robifahmi, N., Flatian, A.N. dan Citraresmini, A. 2021. Pengaruh bahan pembenah tanah pada pH dan P tersedia tanah sub-optimal ultisols asal Jasinga Kabupaten Bogor. Seminar Nasional dalam rangka Dies Natalis ke-45 UNS Tahun 2021, 5(1):648-659
- Baghaie, A.H. and Fereydoni, M. 2019. The potential risk of heavy metals on human health due to the daily consumption of vegetables. *Environmental Health Engineering and Management Journal*, 6(1): 11–16. doi 10.15171/EHEM.2019.02
- Bahnasawy, N.M.A., Elwa, A.M, Laila E.S. and El- Essawi, T. 2019. Distribution and forms of cobalt and its relationship to mineralogical composition in Soils of the 10th of Ramadan City, Egypt. *Egyptian Journal of Soil Science*, 59(3): 223 – 239
- Bakhat, H.F., Zia, Z., Fahad, S., Abbas, S., Hammad, H.M., Shahzad, A.N., Abbas, F., Alharby, H. and Shahid, M. 2017. Arsenic uptake, accumulation and toxicity in rice plants: Possible remedies for its detoxification: A review. *Environmental Science and Pollution Research*, 24(17): 9142–9158.
- Bakshi, A., Panigrahi, K. 2022. Chromium contamination in soil and its bioremediation: an overview. *Advances in Bioremediation and Phytoremediation for Sustainable Soil Management*, 30(22): 229-248 https://doi.org/10.1007/978-3-030-89984-4_15
- Bakshi, S., He, Z., and Banik, C. 2018. *Managing Soil Health For Sustainable Agriculture*. USA: Science Publishing
- Balabanova, B., Stafilov, T., and Baceva, K. 2015. Bioavailability and bioaccumulation characterization of essential and heavy metals contents in *R. acetosa*, *S. oleracea* and *U. dioica* from copper polluted and reference area. *Journal of Environmental Health Science & Engineering*. 13(2):1-13. doi: 10.1186/s40201-015-0159-1.
- [Balittanah] Balai Penelitian Tanah. 2005. Petunjuk Teknis Analisis Kimia Tanah, Tanaman, Air, dan Pupuk. Bogor: Balai Penelitian Tanah-Badan Penelitian dan Pengembangan Pertanian Departemen Pertanian

- Balafrej, H., Bogusz, D., Triqui, Z.A., Guedira, A., Bendaou, N., Smouni, A. and Fahr, M. (2020). Zinc hyperaccumulation in plants: a review. *Plants* 9(562):1-22
- Bansah, K. J. and Addo, W. K. 2016. Phytoremediation potential of plants grown on reclaimed spoil lands. *Ghana Mining Journal*, 16(1): 68 – 75
- Batool, R., ur Rehman, S., Rafique, M., Amna, Ali, J., Mukhtar, T., Mahmood, S., Sultan, T., Munis, F.H., and Chaudhary, H.J. 2019. Biocontrol potential of *Bacillus gibsonii* and *Brevibacterium frigoritolerans* in suppression of Fusarium stalks rot of maize: a sustainable approach. *Asian Journal of Agriculture and Biology*, 7(3), 320-333
- Belles-Sancho, P., Lardi, M., Liu, Y., Hug, S., Pinto-Carbo, M.A., Zamboni, N., and Pessi, G. 2021. *Paraburkholderia phymatum* homocitrate synthase nifv plays a key role for nitrogenase activity activity during symbiosis with papilionoids and in free-living growth conditions. *Cells*, 10(952):1-20. <https://doi.org/10.3390/cells10040952>
- Bibi, F., Chung, E.J., Jeon, C.O., and Chung, Y.R. 2011. *Bacillus graminis* sp. nov., endophyte isolated from a coastal dune plant. *International Journal of Systematic and Evolutionary Microbiology*, 61(11): 1567-1571. Doi: 10.1099/ijs.0.023820-0
- Böhmer, M., Ozdín, D., Račko, M., Lichvár, M., Budiš, J., and Szemes, T. 2020. Identification of bacterial and fungal communities in the roots of orchids and surrounding soil in heavy metal contaminated area of mining heaps. *Applied Sciences*, 10 (7367): 1-18. doi:10.3390/app10207367
- Bojórquez-Quintal, E., Escalante-Magaña, C., Echevarría-Machado, I., and Martínez-Estévez, M. 2017. Aluminum, a friend or foe of higher plants in acid soils. *Frontiers in Plant Science*, 8(1767):1-18
- Bokulich, N.A., Subramanian, S., Faith, J.J., Gevers, D., Gordon, J.I., Knight, R., Mills, D.A. and Caporaso, J.G. 2013. Quality-filtering vastly improves diversity estimates from Illumina amplicon sequencing. *Nature methods*, 10(1), 57–59. <https://doi.org/10.1038/nmeth.2276>
- Bria, E.J., dan Binsasi, R. 2018. Kajian Vegetasi di Kawasan Pasca Tambang Marmer Kabupaten Timor Tengah Utara. *SAINTEKBU: Jurnal Sains dan Teknologi*, 10(2): 10-16
- Bro, R. and Smilde, A.K. 2014. Principal component analysis. *Anal Methods*. 10(6):2812-2831: doi: 10.1039/c3ay41907
- Broadley, M., Brown, P., Cakmak, I., Rengel, Z., and Zhao, F. 2012. Chapter 7. Function of nutrients: micronutrients. In: Marschner P, ed. *Marschner's mineral nutrition of higher plants*, 3rd edn. San Diego: Academic Press, 191–248

- Callender, K.L., Roy, S., Khasa, D.P., Whyte, L.G., and Greer, C.W. 2016. Actinorhizal alder phytostabilization alters microbial community dynamics in gold mine waste rock from Northern Quebec: a greenhouse study. *PLoS ONE*, 11(2):1-25. doi:10.1371/journal.pone.0150181
- Camejo, D., Rodriguez, P., Morales, M.A., Dell'Amico, J.M., Torrecillas, A., Alarcon, J.J., 2005. High temperature effects on photosynthetic activity of two tomato cultivars with different heat susceptibility. *Journal of Plant Physiology*, 162(2005): 281–289. <https://doi.org/10.1016/j.jplph.2004.07.014>.
- Caporaso, J.G., Kuczynski, J., Stombaugh, J., Bittinger, K., Bushman, F.D., Costello, E.K., Fierer, N., Peña, A.G., Goodrich, J.K., Gordon, J.I., Huttley, G.A., Kelley, S.T., Koenig, D.K.J., Ley, R.E., Lozupone, C.A., McDonald, D., Muegge, B.D., MegPirrung, Reeder, J., Sevinsky, J.R., Turnbaugh, P.J., Walters, W.A., Widmann, J., Yatsunenko, T., Zaneveld, J. and Knight R. 2010. QIIME allows analysis of high-throughput community sequencing data. *Nature methods* 75 (2010): 335-336.
- Carey, A. M., Scheckel, K. G., Lombi, E., Newville, M., Choi, Y., Norton, G. J., Charnock, J.M., Feldmann, J., Price, A.H. and Meharg, A.A. 2012. Grain accumulation of selenium species in rice (*Oryza sativa* L.). *Environmental Science and Technol*, 46 (12): 5557–5564. doi: 10.1021/es203871
- Chairunnisa, F., Irwanto, R., dan Apriyadi, R. 2022. Kelimpahan dan Keanekaragaman Collembola pada Tingkat Kesuburan Tanah di Lahan Percontohan Reklamasi Tambang Timah Desa Bukit Layang, Bangka. *Jurnal Ilmu Tanah dan Lingkungan*, 24 (2): 103-109
- Chao, Z.F. and Chao, D.Y. 2022. Similarities and differences in iron homeostasis strategies between graminaceous and nongraminaceous plants. *New Phytologist*, 236 (22): 1655–1660
- Chiou, Y.H., Wong, R.H., Chao, M.R., Che, C.Y., Liou, S.H., and Lee, H. 2014. Nickel accumulation in lung tissues is associated with increased risk of p53 mutation in lung cancer patients. *Environmental and Molecular Mutagenesis*. <https://doi.org/10.1002/em.21867>
- Chu, D. 2018. Effects of heavy metals on soil microbial community. *Earth and Environmental Science*, 113 (18):1-5. doi :10.1088/1755-1315/113/1/012009
- Clarke, K.R. 1993. Non-parametric multivariate analyses of changes in community structure. *Austral Ecology*. 18(1):117-143.
- Clarke, K.R. and Ainsworth, M. 1993. A method of linking multivariate community structure to environmental variables. *Marine Ecology Progress Series* 92(1993):205-219.

- Clair, S.S., Saraylou, M., Melendez, D., Senn, N., Reitz, S., Kananipour, D., and Alvarez, A. 2020. Analysis of the soil microbiome of a Los Angeles Urban Farm. *Applied and Environmental Soil Science*, (2020): 1-15., <https://doi.org/10.1155/2020/573823>
- Colin, Y., Gobernaa, M., Verdua, M., and Navarro-Canoa, J.A. 2019. Successional trajectories of soil bacterial communities in mine tailings: The role of plant functional traits. *Journal of Environmental Management*, 41 (2019) 284–292
- Collin, S., Baskar, A., Geevarghese, D.M., Ali, M.N.V.S., Bahubali, P., Choudhary, R., Lvov, V., Tovar, G.I., Senatov, F., Koppala, S., and Swaniappan, S. 2022. Bioaccumulation of lead (Pb) and its effects in plants: A review. *Journal of Hazardous Materials Letters*, 3(2022): 1-8
- Cornu, J.Y., Huguenot, D., Jézéquel, K., Lollier, M., and Lebeau, T. 2017. Bioremediation of copper contaminated soils by bacteria. *World Journal Microbiology and Biotechnology*. 33(26): 1-9
- D'Alessandro, W., Bellomo, S., and Parello, F. 2012. Fluorine adsorption by volcanic soils at Mt. Etna, Italy. *Applied Geochemistry*, 27(2012):1179-1188
- DalCorso, G., Fasani, E., Manara, A., Visioli, G., and Furini A. 2019. Review Heavy metal pollutions: state of the art and innovation in phytoremediation. *International Journal of Molecular Sciences*., 20(3412):1-17. doi:10.3390/ijms20143412
- Dalvi, A. A. and Bhalerao, S. A. 2013. Response of plants towards heavy metal toxicity: an overview of avoidance, tolerance and uptake mechanism. *Annals of Plant Sciences*, 2(2013): 362–368.
- Damo, J.L.L., Ramirez, M.D.A., Agake, S.I., Pedro, M., Brown, M., Sekimoto, H., Yokoyama, T., Sugihara, S., Okazaki, S., and Ohkama-Ohitsu, N. 2022. Isolation and characterisation of phosphate solubilizing bacteria from paddy field soils in Japan. *Microbes and Environment*, 37(2),1-15.doi:10.1264/jsme2.ME21085
- Da Conceicao Gomes, M.A., Hauser-Davis, R.A., Suzuki, M.S., Vitoria, A.P. 2017. Plant chromium uptake and transport, physiological effects and recent advances in molecular investigations. *Ecotoxicology and Environmental Safety*, 140 (2017): 55–64
- De Mandal, S., Chatterje, R., and Kumar, N.S. 2017. Dominant bacterial phyla in caves and their predicted functional roles in C and N cycle. *BMC Microbiology*, 17(90): 1-9. doi:10.1186/s12866-017-1002-x
- Deng C, Zhang N, Liang X, Huang T, Li B. (2022). *Bacillus aryabhattai* LAD impacts rhizosphere bacterial community structure and promotes maize plant growth. *Journal of the Science of Food and Agriculture*, 02(14):6650-6657. doi: 10.1002/jsfa.12032

- Dey, S., Masumder, P.B., Paul, S.B. 2014. Effect of copper on growth and chlorophyll content in tea plants (*Camellia sinensis* (L.) O. Kuntze). *International Journal of Research in Applied, Natural and Social Sciences*, 2(5): 2347-4580
- Ding, L., Hirose, T., Yokota, A., 2009. Four novel *Arthrobacter* species isolated from filtration substrate. *International Journal of Systematic and Evolutionary Microbiology*, 59(2009): 856–862
- dos Santos, I.B., Pereira, A.P.dA, de Souza, A.J., Cardoso, E.J.B.N., da Silva, F.G., Oliveira, J.T.C., Verdi, M.C.Q. and Sobral, J.K. 2022. Selection and characterization of burkholderia spp. For their plant-growth promoting effects and influence on maize seed germination. *Frontiers in Soil Science*, 1(2022):1-10. doi: 10.3389/fsoil.2021.805094
- Edgar, R.C. 2004. MUSCLE: multiple sequence alignment with high accuracy and high throughput. *Nucleic Acids Researchs*, 32(5):1792-17977. doi: 10.1093/nar/gkh340. PMID: 15034147; PMCID: PMC390337.
- Edgar, R.C., Haas, B.J., Clemente, J.C., Quince, C. and Knight, R. 2011. UCHIME improves sensitivity and speed of chimera detection, *Bioinformatics*, 27(16): 2194–2200. <https://doi.org/10.1093/bioinformatics/btr381>
- Edgar, R.C. 2013. UPARSE: highly accurate OTU sequences from microbial amplicon reads. *Nature Methods*, 10(10):996-998. doi: 10.1038/nmeth.2604. Epub 2013 Aug 18. PMID: 23955772
- El-ghamry, M.A., Elzawawi, F.M., Ayman, A., Abdel, A. , Khadija, M., Nassir, and Samy M. A.E. 2022. New Schiff base ligand and its novel Cr(III), Mn(II), Co(II), Ni(II), Cu(II), Zn(II) complexes: spectral investigation, biological applications, and semiconducting properties. *Scientific Reports*, 12(17942):1-21
- Ellerman, M., Carr, J.S., Fodor, A.A., Arthur, J.C., and Carroll, I.M. 2017. Chapter 2 - Characterizing and Functionally Defining the Gut Microbiota: Methodology and Implications. *The Microbiota in Gastrointestinal Pathophysiology*: 15-25. <https://doi.org/10.1016/B978-0-12-804024-9.00002-2>
- Engwa, G.A., Ferdinand, P.U., Nwalo, F.N. and Unachukwu, M.N., 2019. Mechanism and health effects of heavy metal toxicity in humans. *Poisoning in the modern world-new tricks for an old dog* 10(2019):1-25. DOI: <https://doi.org/10.5772/intechopen.82511>.
- Erfandi, D. 2017. Review pengelolaan lansekap lahan bekas tambang: pemulihan lahan dengan pemanfaatan sumberdaya lokal (in-situ). *Jurnal Sumberdaya Lahan*, 11 (2): 55-66

- Falandysz, J., Bona, H., and Danisiewicz, D. 1994. Silver uptake by *Agaricus bisporus* from an artificially enriched substrate. *Zeitschrift für Lebensmittel-Untersuchung und -Forschung*, 199(3):225-228
- Fanni, A., Satjapradja, O., dan Setyaningsih, L. 2022. Potensi Kesesuaian Jenis Tanaman Pada Areal Lahan Pascatambang Timah (Studi Kasus di Kecamatan Sungai Selan Kabupaten Bangka Tengah Provinsi Bangka Belitung). *Jurnal Nusa Sylva*, 22(1): 6-16
- Farzadfar, S., Zarinkamar, F., and Hojati, M. 2017. Magnesium and manganese affect photosynthesis, essential oil composition and phenolic compounds of *Tanacetum parthenium*. *Plant Physiology Biochemistry*. 112(2017):207–217. doi: 10.1016/j.plaphy.2017.01.002
- Favaz, P.J.C., Pratas, J., Varun, M., D’Souza, R., and Paul, M.S. 2014. Phytoremediation of Soils Contaminated with Metals and Metalloids at Mining Areas: Potential of Native Flora. *Intech* 485-517.<http://dx.doi.org/10.5772/57469>
- Feng, G., Xie, T., Wang, X., Bai, J., Tang, L., Zhao, H., Wei, W., Wang, M., and Zhao, Y. 2018. Metagenomic analysis of microbial community and function involved in cd-contaminated soil. *BMC Microbiology*, 18(11): 1-13. <https://doi.org/10.1186/s12866-018-1152-5>
- Ferdian, F., Hindarti, D., and Permana, R. 2020. Cadmium effects on growth and photosynthetic pigment content of *Chaetoceros gracilis*. *World Scientific News*, 145(20): 245-255
- Ferina, P., Rosariastuti, R. and Supriyadi. 2017. The effectiveness of Mendong plant (*Fimbristylis globulosa*) as a phytoremediator of soil contaminated with chromium of industrial waste. *Journal of Degraded and Mining Lands Management*. 4(4): 899-905, DOI: 10.15243/jdmlm.2017.044.899.
- Fernandes, C.C., Kishi, L.T., Lopes, E.M., Omori, P., de Souza, J.A.M., Alves, L.M.C., de Macedo, and Lemos, E.G. 2018. Bacterial communities in mining soils and surrounding areas under regeneration process in a former ore mine. *Brazilian Journal of Microbiology*, 49(2018):489-502
- Firnia, D. 2018. Dinamika unsur fosfor pada tiap horison profil tanah masam. *Jurnal Agroekotek* 10 (1): 45 – 52
- Firnia, D., Anwar, S., Santosa, D.A., Nugroho, B. and Baskoro, D.P.T. 2020. Transformation of aluminium fractions and phosphorus availability in acid soils as the result of microbes and ameliorant addition. *Journal of Degraded and Mining Lands Management*, 7(4): 2355-2362, DOI: 10.15243/jdmlm.2020.074.2355.
- Firdausi, J., B. Ali, M.,M., Sutanto, Suprpto. 2018. Geologi dan persebaran mineralisasi timah, unsur radioaktif dan unsur tanah jarang di Blok Lembah

- Jambu, Kecamatan Tempilang, Kabupaten Bangka Barat, Provinsi Kepulauan Bangka Belitung. *Proceeding*, Seminar Nasional Kebumihan Ke-11 Perspektif Ilmu Kebumihan Dalam Kajian Bencana Geologi Di Indonesia 5 – 6 September 2018, Graha Sabha Pramana
- Fitzpatrick, K.L., Tyerman, S.D., and Kaiser, B.N. 2008. Molybdate transport through the plant sulfate transporter SHST1. *FEBS Letters*, 582(2008): 1508–1513
- Foth, H.D. 1991. *Fundamentals of Soil Science*. Terjemahan Purbayanti E.D., Lukiwati, D.R., Trimulatsih, R. 1991. *Dasar-Dasar Ilmu Tanah*. Yogyakarta: Gadjah Mada University Press
- Francesconi, K.A., 2010. Arsenic species in seafood: origin and human health implications. *Pure Applied Chemistry*, 82 (2), 373–381.
- Freeman, J.L. and Salt, D.E. 2007. The metal tolerance profile of *Thlaspi goesingense* is mimicked in *Arabidopsis thaliana* heterologously expressing serine acetyl-transferase. *BMC Plant Biology*, 7(63): 1-10
- Gao, M., Wang W., Cao, M., Yang, H., Li, Y. 2020. Hierarchical hollow manganese-magnesium-aluminum ternary metal oxide for fluoride elimination. *Environmental Research*, 188 (20): 1-9
- Gelyamen, G.D. 2018. Faktor-faktor yang mempengaruhi bioavailabilitas Besi bagi tumbuhan. *Jurnal Saintek Lahan Kering* 1(1): 14-16
- Gergichevich, C.M., Alberdi, M., Ivanov, A.G. and Diaz, M.R. 2010. Al^{3+} - Ca^{2+} Interaction in plants growing in acid soils: Al phytotoxicity response to calcareous amendments. *Journal of Soil Science and Plant Nutrition*, 10 (3): 217- 243
- Ghazanfar, S., Komal, A., Waseem, A., Hassan, W., Iqbal, R.J., Toor, S., Asif, M., Saleem, I.A., Khan, S.U., Tarar, Z.H., Nazar, S., U Rehman, H., Ahmerd, M.I., and Rebi, A. 2021. Physiological effects of nickel contamination on plant growth. *Natural Volatiles and Essentials Oils*, 8(5): 13457-13469
- Ghazaryan, K., Movsesyan, H., Ghazaryan, N., and Watts, B.A., 2019. Copper phytoremediation potential of wild plant species growing in the mine polluted areas of Armenia. *Environmental Pollution*, 249 (19) 491-501
- Gorny, J., Billon, G., Lesven, L., Dumoulin, D., Madé, B. and Noiriel, C. Arsenic behavior in river sediments under redox gradient: A review. *Science of the Total Environment*, 505 (15): 423–434
- Gourmelon, V., Maggia, L., Powell, J.R., Gigante, S., Hortal, S., and Gueunier, C. 2016. Environmental and geographical factors structure soil microbial diversity in New Caledonian Ultramafic Substrates: a metagenomic approach. *PLoS ONE*, 11(12):1-25.doi:10.1371/journal.pone.0167405
- Gosh, R., Barman, S., Mukherjee, R., and Mandal, N.C. 2016. Role of phosphate solubilizing *Burkholderia* spp. for succesfull colonization and growth

- promotion of *Lycopodium cernuum* L. (Lycopodiaceae) in Lateritic Belt of Birbhum District of West Bengal, India. *Microbiological Research*, 183 (16), 80-91.
- Gransee and Führs, H. 2013. Magnesium mobility in soils as a challenge for soil and plant analysis, magnesium fertilization and root uptake under adverse growth conditions. *Plant Soil*, 368(13):5–21 DOI 10.1007/s11104-012-1567-y
- Greaterex, S.E., Krogstad, T. and Trine, S. 2010. Effect of phosphorus status of the soil on selenium availability. *Journal of Plant Nutrition and Soil Science*, 173(3):337 - 344
- Guerrero-Cebalos, D.L., Pinta-Melo, J., Fernandes-Izquierdo, P., Ibarguen-Mondragon, E., and Burbano-Rosero, E.M. 2021. Molecular techniques for the assessment of Cr(IV) reduction by *Bacillus thuringiensis*. *Universitas Scientiarum*, 26(2): 243-259. doi:10.11144/Javeriana.SC26-2.mtft
- Guo, D., Fan, Z., Lu, S., Ma, Y., Nie, X., Tong, F., and Peng, X. 2019. Changes in rhizosphere bacterial communities during remediation of heavy metal-accumulating plants around the Xikuangshan mine in southern China. *Scientific Reports*, 9(1947): 1-11. <https://doi.org/10.1038/s41598-018-38360-2>
- Guo, G., Xiao, J., and Jeong, B.R. Iron source and medium pH affect nutrient uptake and pigment content in petunia hybrida ‘madness red’ cultured in vitro. *International Journal of Molecular Sciences*, 23 (8943): 1-23. <https://doi.org/10.3390/ijms23168943>
- Gupta, N., Ram, H., and Kumar, B. 2016. Mechanism of zinc absorption in plants: uptake, transport, translocation and accumulation. *Reviews in Environmental Science and Bio/Technology*, 15(16):89–109.
- Gupta, M. and Gupta, S. 2017. An overview of selenium uptake, metabolism, and toxicity in plants. *Frontiers in Plant Science*, 7(17):1-14. doi: 10.3389/fpls.2016.02074
- Guskarnali, Mahardika, R.G., and Sandy, B.D.A. 2020. Characterization of chemical content tailings sand and water from the tin post-mining in Merawang Subdistrict, Bangka Regency. 2nd International Conference on Green Energy and Environment (ICoGEE 2020). IOP Conf. Series: Earth and Environmental Science 599 (20) 012074. doi:10.1088/1755-1315/599/1/012074
- Guskarnali, Manik, B.H., Mahardika, R.G., Sandy, dan B.D.A. 2020. Identifikasi keberadaan logam tanah jarang (LTJ) pada *tailing* timah menggunakan alat xrf portable dan xrf max/portrace-Kecamatan Merawang. *Jurnal Geosains untuk Aplikasi Pertambangan*, 6(2):121-124

- Gutsch, A., Hendrix, S., Guerriero, G., Renaut, J., Lutts, S., Alseekh, S., Fernie, A.R., Hausman, J.F., Vangonsveld, J., Cuypers, A., and Sergeant, K. 2020. Long-term Cd exposure alters the metabolite profile in stem tissue of *Medicago sativa*. *Cells*, 9(2707): 1-22 ; doi:10.3390/cells9122707
- Haas, B.J., Gevers, D., Earl, A.M., Feldgarden, M., Ward, D.V., Giannoukos, G., Ciulla, D., Tabbaa, D., Highlander, S.K., Sodergren, E., Methé, B., DeSantis, T.Z., Human Microbiome Consortium, Petrosino, J.F., Knight, R., Birren, B.W.2011. Chimeric 16S rRNA sequence formation and detection in Sanger and 454-pyrosequenced PCR amplicons. *Genome Research*, 21(3):494-504. doi: 10.1101/gr.112730.110.
- Hajar, E.W.I., Ziad Bin Sulaiman, A. and Mimi Sakinah, A.M. 2014. Assessment of heavy metals tolerance in leaves, stems and flowers of *Stevia rebaudiana* Plant. *Procedia Environmental Sciences*, 20 (14): 386 – 393
- Hamid, I., Priatna, S.J., dan Hermawan, A. 2017. Karakteristik beberapa sifat fisika dan kimia tanah pada lahan bekas tambang timah. *Jurnal Penelitian Sains*, 19(1):23-31
- Hamzah, A., Hapsari, R.I., and Priyadarshini, R. 2017. The potential of wild vegetation species of *Eleusine indica* L., and *Sonchus arvensis* L. for phytoremediation of Cd-contaminated soil. *Journal of Degraded Andmining Lands Management*, 4 (3): 797-805. DOI:10.15243/jdmlm.2017.043.797
- Han, Y.L., Song, H.X., Liao, Q., Yu, Y., Jian, S.F., Lepo, J.E., Liu, Q., Rong, X.M., Tian, C., Zeng, J., Guan, C.Y., Ismail, A.M., and Zhang, Z.H., 2016. Nitrogen use efficiency is mediated by vacuolar nitrate sequestration capacity in roots of brassica napus. *Plant Physiology*, 170 (3): 1684–1698
- Handayani, P., Kurniawan, dan Aldibarata, S. 2020. Kandungan logam berat Pb pada air laut, sedimen dan kerang darah (*Anadara granosa*) di pantai sampur Kabupaten Bangka Tengah. *Jurnal IPTEK Terapan Perikanan dan Kelautan*, 1(2): 97-105
- Hansda, A., Kumar, V., and Ansumali. 2017. Cu-resistant Kocuria sp. CRB15: a potential PGPR isolated from the dry tailing of Rakha copper mine. *Biotechnology*, 7(132): 1-11, DOI 10.1007/s13205-017-0757-y
- Harahap, F.R. 2016. Restorasi lahan pasca tambang timah di Pulau Bangka. *Jurnal Society*, 6(1):61-69
- Hariadi, Y. and Shabala, S. 2004. Screening broad beans (*Vicia faba*) for magnesium deficiency. I. Growth characteristics, visual deficiency symptom and plant nutritional status. *Functional Plant Biology*, 31(4): 529–537. doi: 10.1071/fp03201
- 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.). *Jurnal Tanah dan Lingkungan*, 15(2): 52-59

Harmida, K., Harahap, Y., dan Supandi. 2019. *Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS)*. Jakarta Barat: PT.ISFI

Harris, J., Schneberg, K. A., and Pilon-Smits, E. A. H. 2014. Sulfur-seleniummolybdenum interactions distinguish selenium hyperaccumulator *Stanleya pinnata* from non-hyperaccumulator *Brassica juncea* (*Brassicaceae*). *Planta*, 239(14): 479–491. doi: 10.1007/s00425-013-1996-8

Hasan, W., Akmal, M., Muhammad, I., Younas, M., Zahaid, K.R., and Ali, F. 2013. Response of soil microbial biomass and enzymes activity to cadmium (Cd) toxicity under different soil textures and incubation times. *Asian Journal of Community Services*, 7(5):674-680

Hasanuzzaman, M., Nahar, K., Rahman, A., Al Mahmud, J., Alharby, H.F., and Fujita, M. 2018. Exogenous glutathione attenuates lead-induced oxidative stress in wheat by improving antioxidant defense and physiological mechanisms. *Journal of Plant Interactions*, 13(1): 203–212. <https://doi.org/10.1080/17429145.2018.1458913>

Hashim, M.A., Mukhopadyay, S., Sahu, J.N., and Sengupta, B. 2011. Remediation technologies for heavy metal contaminated groundwater. *Journal of Environmental Management*, 92(10): 2355-2388

Hasidah, Mukarlina dan Rousdy, D..H. 2017. Kandungan pigmen klorofil, karotenoid dan antosianin daun *Caladium*. *Protobiont*, 6 (2) : 29 - 37

Hassan, M.U., Chattha, M.U., Khan, I., Chattha, M.B., Aamer, M., Nawaz, M., Ali, A., Khan, M.A.U., and Khan, T.A. 2019. Nickel toxicity in plants: reasons, toxic effects, tolerance mechanisms, and remediation possibilities—a review. *Environmental Science and Pollution Research*, 26 (19):12673–12688. <https://doi.org/10.1007/s11356-019-04892-x>.

Hatfield, D. L., Tsuji, P. A., Carlson, B. A., and Gladyshev, V. N. (2014). Selenium and selenocysteine: roles in cancer, health, and development. *Trends in Biochemical Sciences*, 39(14): 112–120. doi: 10.1016/j.tibs.2013.12.007

Hayat, S., Khalique, G., Irfan, M., Wani, A.S., Tripathi, B.N., Ahmad, A. 2012. Physiological changes induced by chromium stress in plants: an overview. *Protoplasma*, 249(12):599–611. DOI 10.1007/s00709-011-0331-0

Hayat, R., Khalid, R., Ehsan, M., Ahmed, I., Yokota, A., and Ali, S. 2013. Molecular characterization of soil bacteria for improving crop yield in Pakistan. *Pakistan Journal of Botany*, 45(3), 1045-1055

- Haydon, M.J. and Cobbett, C.S. 2007. A novel major facilitator superfamily protein at the tonoplast influences zinc tolerance and accumulation in *Arabidopsis*. *Plant Physiology*, 143(7):1705–1719
- Herman, D.Z. 2005. *Kegiatan Pemantauan dan Evaluasi Konservasi Sumber Daya Mineral Daerah Bangka Tengah, Provinsi Bangka-Belitung*. Bangka Belitung (ID): ESDM
- Hermans, S.M., Buckley, H.L., Case, B.S., Cournane, F.C., Taylor, M., and Lear, G. 2020. Using soil bacterial communities to predict physico-chemical variables and soil quality. *Microbiome*, 8 (79):1-13. <https://doi.org/10.1186/s40168-020-00858-1>
- Hewavitharana, S.S., Klarer, E., Reed, A.J., Leisso, R., Poirier, B., Honaas, L., Rudell, D.R., and Mazzola, M. 2019. Temporal dynamics of the soil metabolome and microbiome during simulated anaerobic soil disinfestation. *Frontiers in Microbiology*, 10(2365): 1-17
- Hidayat, A., Hardjowigeno, S., Soekardi, M., Sabiham, S. 2002. Peranan oksida besi terhadap sifat tanah berpelapukan lanjut. *Jurnal Tanah dan Iklim*, 20(2): 47-55
- Hill, J.K., Halmer, K.C., Lace, L.A. and Banham, W.M.T. 1995. Effect of selecting logging on tropical forest butterflies. *Journal of Applied Ecology*, 32(4):754-760.
- Hou, D., Wang, K., Liu, T., Wang, H., Lin, Z., Qian, J., Lu, L., Qian, J., Lu, L., and Tian, S. 2017. Unique rhizosphere micro-characteristics facilitate phytoextraction of multiple metals in soil by the hyperaccumulating plant *Sedum alfredii*. *Environmental Science and Technology*, 51(17): 5675–5684. DOI:10.1021/acs.est.6b06531
- Hu, D., Li, M., Zhao, F.J and Huang, X.Y.2022. The Vacuolar Molybdate Transporter OsMOT1;2 Controls molybdenum remobilization in rice. *Frontiers in Plant Science*, 13(863816):1-13. doi: 10.3389/fpls.2022.863816
- Hu, X., Wei, X., Ling, J. and Chen, J. 2021. Cobalt: an essential micronutrient for plant growth. *Frontiers in Plant Science*, 12(21): 1-24. <http://dx.doi.org/10.3389/fpls.2021.768523>. PMid:34868165
- Huang, C., Lai, C., Xu, P., Zeng, G., Huang, D., Zhang, J., Zhang, C., Cheng, M., Wan, J. and Wang, R. 2017. Lead-induced oxidative stress and antioxidant response provide insight into the tolerance of *Phanerochaete chrysosporium* to lead exposure Chao Huang. *Chemosphere*, 187 (17): 70-77
- Huang, H., Zhao, Y., Xu, Z., Ding, Y., Zhou, X., and Dong, M. 2020. A high Mn (II)-Tolerance Strain, *Bacillus thuringiensis* HM7, Isolated from manganese ore and its biosorption characteristics. *PeerJ*, 8:e8589.<https://doi.org/10.7717/peerj.8589>

- Huang, X.Y., Hu, D.W., and Zhao, F.J. Molybdenum: more than an essential element. *Journal of Experimental Botany*, 73(6):1766–1774
- Husen, E. 2004. *Prosedur Pengambilan Contoh Tanah untuk Analisis Mikroba*. Bogor: Balai Penelitian Tanah
- Husnah, H. dan Prianto, E. 2017. Penambangan timah inkonvensional: dampaknya terhadap kerusakan biodiversitas perairan umum di pulau Bangka. *BAWAL Widya Riset Perikanan Tangkap*, 2 (5): 193-198. DOI: 10.15578/bawal.2.5.2009.193-198
- Igiri, B.E., Okoduwa, S.I.R., Idoko, G.O., Akabuogu, E.P., Adeyi, A.O., and Ejioogu, I.K. 2018. Toxicity and bioremediation of heavy metals contaminated ecosystem from tannery wastewater: a review. *Journal of Toxicology*, 2018(2568038): 1687-8191. <https://doi.org/10.1155/2018/2568038>
- Inaya, N., Armita, D. dan Hafsan. 2021. Identifikasi masalah nutrisi berbagai jenis tanaman di Desa Palajau Kabupaten Jeneponto. *Filogeni: Jurnal Mahasiswa Biologi*, 1(3): 94-102. <https://doi.org/10.24252/filogeni.v1i3.26114>
- Indumathy, B., Sathiyathan, P., Prasad, G., Reza, M.S., Prabu, A.A. and Kim, H. A Comprehensive review on processing, development and applications of organofunctional silanes and silane-based hyperbranched polymers. *Polymers*, 15 (2517): 1-23. <https://doi.org/10.3390/polym15112517>
- Irawati, W., Meyners, G.Y., Dwany, N., Rimpan, T.Y., Ayustin, Y.D., Purba, E.H., Christanti, C.A. 2021. Praktikum sederhana di rumah tentang pengaruh penggunaan Hand Sanitizer terhadap keberadaan koloni bakteri di tangan. *Jurnal Pendidikan Biologi Undiksh*, 8(3): 126-137
- Irvani dan Pitulma, J. 2006. Studi logam berat dalam air dan sedimen kolong retensi kacang pedang pasca penambangan timah. *Promine Jurnal*, 4(1): 40-45
- Irzon, R., Syafri, I., Hutabarat, J., Sendjaja, P., and Permanadewi, S. 2018. Heavy metals content and pollution in tin tailings from Singkep Island, Riau, Indonesia. *Sains Malaysiana* 47(11): 2609–2616 <http://dx.doi.org/10.17576/jsm-2018-4711-03>
- Islam, M.M., Mohana, A.A., Rahman, M.A., Rahman, M., Naidu, R., and Rahman, M.M. 2023. A comprehensive review of the current progress of chromium removal methods from aqueous solution. *Toxics*, 11(252): 1-43. <https://doi.org/10.3390/toxics11030252>
- Jenkins, S., Swenson, T.L., Lau, R., Rocha, A.M., Aaring, A., Hazen, T.C., Chakraborty, R., and Northen, T.R. 2017. Construction of viable soil defined media using quantitative metabolomics analysis of soil metabolites. *Frontiers in Microbiology*, 8(17): 1-12

- Jiang, B., Adebayoc, A., Jia, J., Xing, Y., Denge, S., Guoe, L., Liang, Y., and Zhang, D. 2019. Impacts of heavy metals and soil properties at a Nigerian e-waste site on soil microbial community. *Journal of Hazardous Materials*, 362 (19): 187–195
- Jiang, M., Hong, K., Mao, Y., Ma, H., Chen, T. and Wang. Z. 2022. Natural 5-Aminolevulinic Acid: Sources, Biosynthesis, Detection and Applications. *Frontiers in Bioengineering and Biotechnology*. 10(841443): 1-17. doi: 10.3389/fbioe.2022.841443
- Jin, Y., Luan, Y., Ning, Y., and Wang, L. 2018. Effects and mechanisms of microbial remediation of heavy metals in soil: a critical review. *Applied Sciences*, 8(1336):1-17. doi:10.3390/app8081336
- Jones OAH, Maguire ML, Griffin JL, Dias DA, Spurgeons DJ, Svendsens C. 2013. Metabolomics and its use in ecology. *Austral Ecology*, 38(13): 713–720
- Jones, O.A.H., Sdepanian, S., Lofts, S., Svendsen, C., Spurgeon, D.J., Maguire, M.L., and Griffin, J.L. 2014. Metabolomic analysis of soil communities can be used for pollution assessment. *Environmental Toxicology and Chemistry*, 33(1): 61–64
- Joseph, T., Dubey, B. and McBean, E.A. 2010. Human health risk assessment from arsenic exposures in Bangladesh. *Science of the Total Environment*, 527(15): 552–560
- Juairiah, L. 2014. Studi Karakteristik stomata beberapa jenis tanaman revegetasi di lahan pascapenambangan timah di Bangka. *Widyariset*, 17(2): 213–218
- Kanwar, P., Baby, D., and Bauer, P. 2021. Interconnection of iron and osmotic stress signalling in plants: Is fit a regulatory hub to cross-connect abscisic acid responses? *Plant Biology*, 23 (21): 31–38
- Kartika, Y.S., Ginting, Y.C. dan Karyanto, A. 2014. Pengaruh konsentrasi tembaga terbaik untuk pertumbuhan dan produksi dua varietas melon (*Cucumis melo* L.) pada sistem hidroponik media padat. *Jurnal Agrotek tropika*, 2(3):341-346
- Kaya, E. 2014. Pengaruh pupuk organik dan pupuk NPK terhadap pH dan K-tersedia tanah serta serapan-K, pertumbuhan, dan hasil padi sawah (*Oryza sativa* L.). *Buana Sains*, 14(2): 113-122
- Ke, Y., Dury, A., Gonthier, R., and Labrie, F. 2018. Evaluation of a one-step sample preparation protocol for analysis of total serum testosterone by LC–MS/MS. *Clinical Mass Spectrometry*, 10 (18) 9–15
- [Kepmen ESDM No 1827] Keputusan Menteri Energi dan Sumber Daya Mineral Nomor 1827. 2018. Kepmen ESDM Nomor 1827 K/30/MEM/2018 tentang

- Pelaksanaan Kaidah Teknik Pertambangan yang Baik. Jakarta: Menteri Energi dan Sumber Daya Mineral Republik Indonesia
- Khairani, Aini, F., Riany, H. Karakterisasi dan Identifikasi Bakteri Rizosfer Tanaman Sawit Jambi. *AL-KAUNIYAH: Jurnal Biologi*, 12(2): 198-206
- Khan, Z.I., Liu, W., Mubeen, I., Alrefaeid, F., Alharbie, S.N., Muhammad, F.G., Ejaz, A., Ahmada, K., Nadeem, M., Shoukatf, J., Ashfaq, A., Mahpara, S., Siddique, K., Ashraf, M.A., Memon, H., Batool, A.I., Munira, M., Malika, I.S., Noorka, I.R. and Ugulu, I. 2023. Cobalt availability in the soil plant and animal food chain: a study under a peri-urban environment. *Brazilian Journal of Biology*, 83(23): 1-11. <https://doi.org/10.1590/1519-6984.270256>
- Khafid, A.A., Suedy, S.W.A., dan Nurcahyati, Y. 2021. Kandungan klorofil dan karotenoid daun salam (*Syzygium polyanthum* (Wight) Walp.) pada umur yang berbeda. *Buletin Anatomi dan Fisiologi*, 6(8): 74-80
- Khasanah, U., Mindari, W. dan Suryaminarsih, P. 2021. Kajian pencemaran logam berat pada lahan sawah di Kawasan Industri Kabupaten Sidoarjo. *Jurnal Teknik Kimia*, 15(2): 73-81
- Khatimah H., Arifin, Y.F., and Putra, A.P. 2023. *Etnobotani Fabaceae di KHDTK Universitas Lampung Mangkurat*. Banjarmasin: Universitas Lampung Mangkurat
- Kiran, B.R. and Prasad, M.N.V. 2019. Defense manifestations of enzymatic and non-enzymatic antioxidants in *Ricinus communis* L. exposed to lead in hydroponics. *The EuroBiotech Journal*, 3(3): 117-127
- Kirui, C.K., Njeru, E.M., and Runo, S. 2020. Diversity and phosphate solubilisation efficiency of phosphate solubilizing bacteria isolated from semi-arid agroecosystem of Eastern Kenya. *Microbiology Insight*, 15(20):1-12. DOI:10.1177/11786361221088991
- Kisnieriené, V. and Lapeikaité, I. 2015 When chemistry meets biology: the case of aluminium—a review. *Chemija*, 26(15): 148–158
- Kiswanto, Wintah, dan Rahayu, N.L. 2020. Analisis logam berat (Mn, Fe, Cd), sianida dan nitrit pada air asam tambang batu bara. *Jurnal Litbang Kota Pekalongan*, 18(1): 20-26
- Knuutinen, J., Bomberg, M., Kemell, M., and Lusa, M. 2019. Interactions in Boreal *Paenibacillus* sp., *Methylobacterium* sp., *Paraburkholderia* sp., and *Pseudomonas* sp. Strains Isolated from an Acidic, Ombrotrophic Bog. *Frontiers in Microbiology*, 10(2677):1-21. Doi:10.3389/fmicb.2019.02677
- Kobayashi, T. and Nishizawa, N.K. Iron uptake, translocation, and regulation in higher plants. *The Annuals Review Plant Biology*. 63(12):131–152.

- Kohler, U. and Luniak, M. 2005. Data inspection using biplot. *Stata Journal*, 5(2): 208-223.
- Kong P. and Hong,C. 2020. Endophytic *Burkholderia* sp. SSG as a potential biofertilizer promoting boxwood growth. *Peer Journal* (20): 1-13. DOI 10.7717/peerj.9547
- Kong, Y., Stasiak, M., Dixon, M.A. and Zheng, Y. 2018. Blue light associated with low phytochrome activity can promote elongation growth as shadeavoidance response: a comparison with red light in four bedding plant species. *Environmental and Experimental Botany*, 155 (18) 345–359. <https://doi.org/10.1016/j.envexpbot.2018.07.021>
- Koutika, L.S., and Richardson, D.M. 2019. *Acacia mangium* Willd: benefits and threats associated with its increasing use around the world. *Forest Ecosystem*, 6(2):1-13
- Krisnawati, H., Kallio, M., dan Kanninen, M. 2011 *Acacia mangium* Willd.: ekologi, silvikultur dan produktivitas. CIFOR, Bogor, Indonesia.
- Kumar, S., Dubey, R.S., Tripathi, R.D., Chakrabarty, D. and Trivedi, P.K. 2015.Omics and biotechnology of arsenic stress and detoxification in plants: Current updates and prospective. *Environment International* 74 (15): 221–230
- Kure, J.T., Gana, M., Emmanuel, A., Isah, R.M., and Ukubuiwe, C.C. 2018. Bacteria associated with heavy metal remediation: a review. *International Journal of Applied Business Research*, 9(1): 134 -148
- Kurnia, A., dan Rohendi, N. 2022. Identifikasi logam berat di lahan pasca tambang timah di Kepulauan Bangka Belitung. *Jurnal Geominerba*, 7(2): 164-177
- Kurniawan, A., Oedjijono, Tamad, and Sulaeman, U. 2019. *Short communication: the pattern of heavy metals distribution in time chronosequence of ex-tin mining ponds in Bangka Regency, Indonesia. Indonesian Journal of Chemistry*, 19(1):254-261
- Kusmawati, I. 2013. Isolasi Bakteri Nitrifikasi pada Daerah Rizosfer Tanaman Padi Lokal Pulu Mandoti (*Oryza Sativa* L) di Desa Salukanan, Kabupaten Enrekang,Sulawesi Selatan [Skripsi]. Makasar: Universitas Hasanudin
- Kusmita, T., Indriawati, A., dan Widyaningrum, Y. 2022. Sebaran mineral ikutan timah di wilayah bekas penambangan menggunakan metode *self potential (sp)* sebagai indikasi awal keterdapatan logam tanah jarang (LTJ). *Journal Online of Physic*, 7(2): 54-58
- Kusumaningtyas, A.S., Cahyono, P., Sudarto, dan Suntari, R. 2015. Pengaruh tinggi muka air tanah terhadap pH, Eh, Fe, Aldd, Mn dan P terlarut pada

- tanaman nanas klon GP3 di ultisol. *Jurnal Tanah dan Sumberdaya Lahan*, 2(1): 103-109
- Ladd, M.P.M, Giannone, R.J., Abraham, P.E., Wulschleger, S.D., and Hettich, R.L. 2019. Evaluation of an untargeted nano-liquid chromatography-mass spectrometry approach to expand coverage of low molecular weight dissolved organic matter in Arctic soil. *Scientific Reports*, 9(5810): 1-13 <https://doi.org/10.1038/s41598-019-42118-9>
- La Habi, M., Nendissa, J.N., Marasabessy, D., and Kalay, M.A. 2018. Ketersediaan fosfat, serapan fosfat, dan hasil tanaman jagung (*Zea mays* L.) akibat pemberian kompos granul ela sagu dengan pupuk fosfat pada inceptisols. *Agrologia*, 7(1): 42-52.
- Laity, J.H., Lee, B.M., and Wright, P.E. 2001. Zinc finger proteins: new insights into structural and functional diversity. *Current Opinion in Structural Biology*, 11(1):39–46.
- Laoli, B.M.S., Kisworo, dan Raharjo, D. 2021. Akumulasi pencemar kromium (cr) pada tanaman padi di sepanjang kawasan aliran sungai opak, Kabupaten Bantul. *Biospecies*, 14(1):59-66
- Lasoma, P., Nurmi, F.S. dan Jamin. 2022. Kajian kandungan unsur hara mikro Fe, Mn dan Zn pada berbagai kantong lumpur di Bendungan Lomaya dan Alopohu. *Jurnal Lahan Pertanian Tropis (JLPT)*, 1(2): 1 - 4. Doi: 10.56722/jlpt.v1i2.17174
- Latifa, R., Nurrohman, E. and Hadi, S. 2021. Study of forest types, inventory of tree, and chlorofil contents of malabar forest leaves, Malang City. *Bioscience*, 5(1): 32-43. DOI: 10.24036/0202151111466-0-00
- Laurent, C., Bravin, M.N., Crouzet, O., Pelosi, C., Tillard, E., Lecomte, P., and Lamy, I. 2020. Increased soil pH and dissolved organic matter after a decade of organic fertilizer application mitigates copper and zinc availability despite contamination. *Science of the Total Environment*, 709 (135927):1-20
- Lee, K.M., Jeon, J.Y., Lee, B.J., Lee, H., Choi, and H.K. 2017. Application of metabolomics to quality control of natural product derived medicines. *Biomolecules and Therapeutic*, 25(6): 559-568.
- Lestari, T., Apriyadi, R., Mustikarini, E.D., Satria, A., Yasmin, N.D.. 2020. Optimalisasi pertumbuhan dan daya hasil nenas dengan menggunakan berbagai mulsa di lahan pasca tambang timah. *Jurnal Hortikultura Indonesia*, 11(2): 149-156
- Li, Z. , McLaren, R.G., and Metherell, A.K. 2004 The availability of native and applied soil cobalt to ryegrass in relation to soil cobalt and manganese status

- and other soil properties. *New Zealand Journal of Agricultural Research*, 47(1): 33-43, DOI: 10.1080/00288233.2004.9513568
- Li, M.S. and Yang, S.X. 2008. Heavy metal contamination in soils and phytoaccumulation in a manganese mine wasteland, South China. *Air Soil Water Researches*, 28(1): 31–41
- Li, C., Wang, P., Menzies, N. W., Lombi, E., and Kopittke, P. M. 2017. Effects of changes in leaf properties mediated by methyl jasmonate (MeJA) on foliar absorption of Zn, Mn and Fe. *Annals of Botany*, 120(17): 405–415. doi: 10.1093/aob/mcx063
- Li, X., Meng, D., Li, J., Yin, H., Liu, H., Liu, X., Cheng, C., Xiao, Y., Liu, Z., and Yan, M. 2017. Response of soil microbial communities and microbial interactions to long-term heavy metal contamination. *Environmental Pollution*, 231 (17): 908-917. <http://dx.doi.org/10.1016/j.envpol.2017.08.057>
- Li, Y., He, N., Hou, J., Xu, L., Liu, C., Zhang, J., Wang, Q., Zhang, X. and Wu, X. 2018. Factors influencing leaf chlorophyll content in natural forests at the biome scale. *Frontiers in Ecology and Evolution*, 6(64):1-10. doi: 10.3389/fevo.2018.00064
- Liu, Q., Wang, D.J., Jiang, X.J. and Cao, Z.H. 2004. Effects of the interactions between selenium and phosphorus on the growth and selenium accumulation in rice (*Oryza Sativa*). *Environmental Geochemistry and Health* 26(14): 325–330, 2004.
- Liu, R., Hong, J., Xu, X., Feng, Q., Zhang, D., Gu, Y., Shi, J., Zhao, S., Liu, W., Wang, X., Xia, H., Liu, Z., Cui, B., Liang, P., Xi, L., Jin, J., Ying, X., Wang, X., Zhao, X., Li, W., Jia, H., Lan, Z., Li, F., Wang, R., Sun, Y., Yang, M., Shen, Y., Jie, Z., Li, J., Chen, X., Zhong, H., Xie, H., Zhang, Y., Gu, W., Deng, X., Shen, B., Xu, X., Yang, H., Xu, G., Bi, Y., Lai, S., Wang, J., Qi, L., Madsen, L., Wang, J., Ning, G., Kristiansen, K. and Wang, W. 2017. Gut microbiome and serum metabolome alterations in obesity and after weight-loss intervention. *Nature Medicine*, 23(17): 859–868. <https://doi.org/10.1038/nm>.
- Liu, K., Ding, X., and Wang, J. 2020. Soil metabolome correlates with bacterial diversity and co-occurrence patterns in root-associated soils on the Tibetan Plateau. *Science of the Total Environment* 735 (20): 1-11
- Liu, Y., Xu, W., Wang, Y., Hao, W., Zhou, Q., and Liu, J. 2021. Growth responses and accumulation characteristics of three ornamental plants to Sn contamination in soil. *Agriculture*, 11(205): 1-10. <https://doi.org/10.3390/agriculture11030205>
- Lock, K., Schamphelaere, K. A. C., Beaus, S., Criel, P., Van Eeckhout, H., & Janssen, C. R. (2006). Development and validation of an acute biotic ligand

- model (BLM) predicting cobalt toxicity in soil to the potworm *Enchytraeus albidus*. *Soil Biology & Biochemistry*, 38(6): 1924–1932
- Luo, D., Zheng, H., Chen, Y., Wang, G. and Fenghua, D. 2010. Transfer characteristics of cobalt from soil to crops in the suburban areas of Fujian Province, southeast China. *Journal of Environmental Management*, 91(10): 2248–2253
- Luo, J., Bai, Y., Liang, J., and Qu, J. 2014. Metagenomic approach reveals variation of microbes with arsenic and antimony metabolism genes from highly contaminated soil. *pLoS ONE* 9(10): e108185. doi:10.1371/journal.pone.0108185
- Lux, A., Martinka, M., Vaculik, M. and White, P. J. 2011. Root responses to cadmium in the rhizosphere: a review. *Journal of Experimental Botany*, 62(1): 21–37. doi: 10.1093/jxb/erq281
- Lyensko, E.A., Kozueva, M.A., Klaus, A.A., Pshybytko, N.L. and. Kusnetsov, V.V. 2023. Lower air humidity reduced both the plant growth and activities of photosystems I and II under prolonged heat stress. *Plant Physiology and Biochemistry*, 194 (23): 246–262
- Lyubun, Y.V., Ekaterina, V., Pleshakova, and Mkandawire, M. 2013. Diverse effects of arsenic on selected enzyme activities in soil–plant–microbe interactions. *Journal of Hazardous Materials*, 262 (13) 685–690
- Madhaiyan, M., Selvakumar, G., Alex, T.H., Cai, L., and Ji, L. 2021. Plant growth promoting abilities of novel Burkholderia-related genera and their interactions with some economically important tree species. *Frontiers in Sustainable Food System*, 5(21):1-14. doi.10.2289/fsufs.2021.618305
- Magoč, T. and Salzberg, S.L. 2011. FLASH: fast length adjustment of short reads to improve genome assemblies. *Bioinformatics*, 27(21):2957-63. doi: 10.1093/bioinformatics/btr507.
- Maharani, L., Agus, D.K.C., Faridah, E. 2019. Pertumbuhan Pelawan (*Tristanopsis merguensis* Griff.) pada Tanah Kaolin dan Kuarsa Bekas Tambang Timah di Pulau Bangka [Skripsi]. Yogyakarta: Universitas Gadjah Mada
- Mahey, S., Kumar, R., Sharma, M., Kumar, V., Bhardwaj, and R. 2022. A critical review on toxicity of cobalt and its bioremediation strategies. *SN Applied Sciences*, 2(1279): 1-12 <https://doi.org/10.1007/s42452-020-3020-9>
- Maillard, A., Etienne, P., Diquelou, S., Trouverie J, Billard, V., Yvin, J.C., and Ourry, A. 2016. Nutrient deficiencies modify the ionic composition of plant tissues: a focus on cross-talk between molybdenum and other nutrients in *Brassica napus*. *Journal of Experimental Botany*, 67(19): 5631–5641

- Mali, M.I., Purnama, M.E., dan Mau, A.E. 2021. Dekomposisi serasah daun akasia (*Acacia auriculiformis*) di KHDTK Litbang Kehutanan Oelsonbai Kota Kupang). *Jurnal Wana Lestari*, 3(1): 93-101
- Mani, D. and Kumar, C. 2014. Biotechnological advances in bioremediation of heavy metals contaminated ecosystems: an overview with special reference to phytoremediation. *International Journal of Environmental Science and Technology*, 11(3):843-872
- Marwa, N., Mishra, N., Singh, N., Mishra, A., Saxena, G., Pandey, V., and Singh, N. 2020. Effect of rhizospheric inoculation of isolated arsenic (As) tolerant strains on growth, As-uptake and bacterial communities in association with *Adiantum capillus-veneris*. *Ecotoxicology and Environmental Safety*, 196 (20): 1-11
- Marsac, N.T. and Houmard, J. 1993. Adaptation of cyanobacteria to environmental stimuli: new steps towards molecular mechanisms. *FEMS Microbiology Reviews*, 104(1993):119–189
- Martak, F., Wahyudi, A., Limanto D., and Ali, M.T.M. 2018. Sintesis dan Karakterisasi Senyawa Kompleks Mangan(II) dengan Ligan 2-(4-Klorofenil)-4,5- Difenil-1H-Imidazol
- Matinlinna, J.P., Lung, C.Y.K. and Tsoi, J.K.H. 2018. Silane adhesion mechanism in dental applications and surface treatments: a review. *Dental Materials*, 34(18): 13–28. *Akta Kimindo*, 3(2):159-174
- McCauley, A., Jones, C. and Jacobsen, J. 2003. Plant Nutrient Functions and Deficiency and Toxicity Symptoms. *Nutrient Management Module No.9*, pp. 1–16. Montana: Montana State University
- Mengdi, X., Haibo, D., Jiaxin, L., Zhe, X., Yi, C., Xuana, L., Haiyan, M., Hui, S., Tianqi, A., Yunzhen, L., and Wenqing, C.2020. Metabolomics reveals the “Invisible” detoxification mechanisms of *Amaranthus hypochondriacus* at three ages upon exposure to different levels of cadmium. *Ecotoxicology and Environmental Safety*, 195 (20):1-9
- Miller, S.B., Heuberger, A.L., Broeckling, C.D., and Jahn, C.E. 2019. Non-targeted metabolomics reveals sorghum rhizosphere-associated exudates are influenced by the belowground interaction of substrate and sorghum Genotype. *International Journal of Molecular Sciences*, 20(431): 1-20
- Mirza, N., Mahmood, Q., Maroof Shah, M., Pervez, A. and Sultan, S. 2014. Plants as useful vectors to reduce environmental toxic arsenic content. *The Scientific World Journal*, 2014 (921581): 1-11. <http://dx.doi.org/10.1155/2014/921581>
- Mitra, S., Pramanika, K., Ghoshb, P.K., Sorena, T., Sarkarc, A., Dyd, R.S., Pandeye, S., and Maitia, T.K. 2018. Characterization of Cd-resistant

- Klebsiella michiganensis* MCC3089 and its potential for rice seedling growth promotion under Cd stress. *Microbiological Research*, 210 (18):12–25
- Mnganga, N., Manoko, M.L.K. and Rulangeranga. 2011. Classification of plants according to their heavy metal content around North Mara gold mine, Tanzania: Implication for phytoremediation. *Tanzania Journal of Science*. 37(11): 109 – 119
- Molnar, Z., Solomon, W., Mutum, L. and Janda, T. 2023. Understanding the mechanisms of Fe Deficiency in the rhizosphere to promote plant resilience. *Plants*, 12 (1945): 1-12. <https://doi.org/10.3390/>
- Mongkhonsin, B., Nakbanpote, W., Nakai, I., Hokura, A., Jearanaikoon, N. 2011. Distribution and speciation of chromium accumulated in *Gynura pseudochina* (L.) DC. *Environmental and Experimental Botany*, 74 (11): 56– 64
- Moon, D. H., Jo, R., Koutsospyros, A., Cheong, K. H., and Park, J. H. 2015. Soil washing of fluorine contaminated soil using various washing solutions. *Bulletin of environmental contamination and toxicology*, 94(3): 334-339
- Morel, M., Crouzet, J., Gravot, A., Auroy, P., Leonhardt, N., Vavasseur, A. and Richaud, P. 2009. AtHMA3, a P1B-ATPase allowing Cd/Zn/ Co/Pb vacuolar storage in Arabidopsis. *Plant Physiology*, 149(9):894–904.
- Muchtedi, E. 2012. Reklamasi Lahan Pasca Tambang Timah dan Tingkat Perkembangan Wilayah di Kabupaten Bangka [Tesis]. Bogor: Institut Pertanian Bogor
- Muddarisna, N. and Siahaan, B.C. 2014. Application of organic matter to enhance phytoremediation of mercury contaminated soils using local plant species: a case study on small-scale gold mining locations in Banyuwangi of East Java *Journal of Degraded and Mining Lands Management*, 2(1): 251-258 DOI:10.15243/jdmlm.2014.021.251
- Mullenix, P.J. 2014. A new perspective on metals and other contaminants in fluoridation chemicals. *International Journal of Occupational and Environmental Health*, 20(2): 157-166. DOI 10.1179/2049396714Y.00000000062
- Muller, F.L., Cyster, L.F., Raitt, L.M., and Aalbers, J. 2016. The effects of tin (Sn) additions on the growth of spinach plants. *Phyton*, 84(16): 461-465
- Munir, M. dan Setyowati, R.R.D.N. 2017. Kajian reklamasi lahan pasca tambang di Jambi, Bangka, dan Kalimantan Selatan. *Klorofil*, 1(1): 11-16
- Mustafa, A., Zulfiqar, U., Mumtaz, M.Z., Radziemska, M., Haider, F.U., Holatqo, J., Hammershmiedt, T., Naveed, M., Ali, H., Kintl, A., Saeed, Q., Kucerik, J., and Brtnicky, M. 2021. Nickel (Ni) phytotoxicity and detoxification mechanisms: A review. *Chemosphere*, 328 (138574): 1-21

- Mustikasari, D. 2019. Upaya konservasi tanaman akumulator untuk meminimal cemaran logam berat di lahan tambang timah, Pulau Bangka. *Jurnal Teknosains*, 13(2):89-95. <https://doi.org/10.24252/teknosains.v13i2.8030>
- Myers, K.N., Conn, D., and Brown, A.M.V. 2021. Essential amino acid-enrichment and positive selection highlight endosymbiont's role in-a global virus-vectoring pest. *Systems*, 6(1):1-22. <https://doi.org/10.1128/mSystems.01048-20>
- Nakamaru, Y and Uchida, S. 2008. Distribution coefficients of tin in Japanese agricultural soils and the factors affecting tin sorption behavior. *Journal of Environmental Radioactivity*, 99(8): 1003–1010.
- Nalbantoglu, S. 2019. *Metabolomics: Basic Principles and Strategies*. London, United Kingdom: IntechOpen
- Neidhardt, H., Kramar, U., Tang, X., Guo, H. and Norra, S. Arsenic accumulation in the roots of *Helianthus annuus* and *Zea mays* by irrigation with arsenic-rich groundwater: Insights from synchrotron X-ray fluorescence imaging. *Chemie der Erde*, 75 (15): 261–270
- Ngadenin, Fauzi, R., dan Widodo. 2022. Identifikasi keterdapatan mineral ikutan dan estimasi kandungan monasit pada *tailing* tambang timah di Pulau Bangka. *Buletin Sumber Daya Geologi*, 17(2) : 97 - 108
- Novalia, Nurtjahya, E., Santi, E., dan Sari, E. 2022. Karakter bakteri *Azotobacter* dan *Azospirillum* dari rizosfer tanaman lada di lahan bekas tambang timah. *Jurnal Bios Logos*, 12(1): 46-54
- Nur, F. 2013. Fitoremediasi logam berat kadmium (Cd). *Biogenesis*, 1(1): 74-83
- Nurlia, Zainabun, dan Darusman. 2020. Karakterisasi tanah salin di wilayah pesisir Kecamatan Banda Mulia Kabupaten Aceh Tamiang. *Jurnal Ilmiah Mahasiswa Pertanian*, 5(1): 578-586
- Nurtjahya, E., Setiadi, D., Guhardja, E., Muhadiono, and Setiadi, Y. 2007. populasi collembola di lahan revegetasi tailing timah di Pulau Bangka. *Biodiversitas* 8(4): 309-313
- Nurtjahya, E., Setiadi, D., Guhardja, E., Muhadiono, and Setiadi, Y. 2008. Establishment of four native tree species for potential revegetating of tin-mined land in Bangka Island, Indonesia. *Proceedings of The Third International Seminar on Mine Closure*, 14 – 17 Oct 2008. *Mine Closure 2008, Johannesburg, South Africa*
- Nurtjahya, E., Setiadi, D., Guhardja, E., Muhadiono, and Setiadi, Y. 2009a. Succession on tin-mined land in Bangka Island. *Blumea*, 54(2009):131-138
- Nurtjahya, E., Nur, M.M., and Mulyono, E. 2009b. Rice field cultivation on tin-mined land in Bangka Island, Indonesia. *Proceedings of the Fourth*

International Conference on Mine Closure 9 -11 September 2009, Perth, Australia. Mine Closure 2009.

- Nurtjahya, E., Franklin, J., Umroh, Agustina, F. 2017. The Impact of tin mining in Bangka Belitung and its reclamation studies. *MATEC Web of Conferences*, 101(17):1-6. DOI: 10.1051/mateconf/201710104010
- Nurtjahya, E., Mellawati, J., Pratama, D., Syahrir S. 2023. Study of soil-to-plant transfer factors (TFs) of 226Ra, 232Th, and 40K on plants cultivated on ex-tin mining land in Bangka Belitung, Indonesia. *Journal of Environmental Radioactivity*, 261 (23):1-6. <https://doi.org/10.1016/j.jenvrad.2023.107144>
- Ogunkunle, C.O., Bornmann, B., Wagner, R., Fatoba, P.O., Frahm, R., and Lützenkirchen- Hecht, D. 2019. Copper uptake, tissue partitioning and biotransformation evidence by XANES in cowpea (*Vigna unguiculata* L) grown in soil amended with nano-sized copper particles. *Environmental Nanotechnology, Monitoring & Management*, 12 (100231):1-7
- Ojuederie, O.B and Babalola, O.O. 2017. Microbial and plant-assisted bioremediation of heavy metal polluted environments: a review *International Journal of Environment Research Public Health*, 14 (1504): 1-26 doi:10.3390/ijerph14121504
- O'Malley, M.A. 2007. Exploratory experimentation and scientific practice: Metagenomics and the proteorhodopsin case Maureen A. *History and Philosophy of the Life Sciences* , 29 (3): 335-358
- Orhan, F. (2016). Alleviation of salt stress by halotolerant and halophilic plant growth-promoting bacteria in wheat (*Triticum aestivum*). *Brazilian Journal of Microbiology*, 47(16): 621-627. <http://dx.doi.org/10.1016/j.bjm.2016.04.001>
- Oves, M., Khan, M.S., and Zaidi, A. 2012. Biosorption of heavy metals by *Bacillus thuringiensis* strain osm29 originating from industrial effluent contaminated North Indian Soil. *Saudi Journal of Biological Sciences*, 20(12), 121-129. <https://dx.doi.org/10.1016/j.sjbs.2012.11.006>
- Owusu-Darko, R., Allam, M., Ismail, A., Ferreira, C.A.S., de Oliveria, S.D., and Buys, M. 2020. Comparative genome analysis of *Bacillus sporothermodurans* with its closest phylogenetic neighbor, *Bacillus oleronius*, and *Bacillus cereus* and *Bacillus subtilis* groups. *Microorganisms*, 8(1185): 1-17.doi:10.3390/microorganisms8081185
- Palomares-Rius, J.E., Gutiérrez-Gutiérrez, C., Mota, M., Bert, W., Claesys, M., Yushin, V.V., Suzina, N.E., Ariskina, E.V., Evtushenko, L.I., Subbotin, S.A., and Castillo, P. 2021. '*Candidatus Xiphinematincola pachtaicus*' gen. nov., sp. nov., an-endosymbiotic bacterium associated with nematode species of the genus *Xiphinema* (Nematoda, Longidoridae). *International Journal of Systematic and Evolutionary Microbiology*, 71(21): 1-12

- Patil, C., Calvayrac, C., Zhou, Y., Romdhane, S., Salvia, M.V., Cooper, J.F., Dayan, F.E., and Bertrand, C. 2016. Environmental Metabolic Footprinting: A novel application to study the impact of a natural and a synthetic β -triketone herbicide in soil. *Science of the Total Environment*, 566(16): 552–558
- Patra, A., Pradhan, S.N., Dutta, A. and Mohapatra, K.K. 2022. Nickel the ultra-micronutrient: significant for plant growth and metabolism. *Food and Scientific Reports*, 1(22):35-37
- Paul, O., Jasu, A., Lahiri, D., Nag, M., Rayi, R.R. 2021. In situ and ex situ bioremediation of heavy metals: the present scenario. *Journal of Environmental Engineering and Landscape Management*, 29(4):454-469. <https://doi.org/10.3846/jeelm.2021.15447>
- Pearman, W., Freed, N., and Silander, O. 2019. The advantages and disadvantages of short-and long-read metagenomics to infer bacterial and eukaryotic community composition. <http://dx.doi.org/10.1101/650788>
- Pederferri, P. 2018. Pourbaix Diagrams. In: Corrosion Science and Engineering. Engineering Materials. Springer, Cham. https://doi.org/10.1007/978-3-319-97625-9_4
- Pérez-Cova, M., Tauler, R., and Jaumot, J. 2022. Adverse effects of arsenic uptake in rice metabolome and lipidome revealed by untargeted liquid chromatography coupled to mass spectrometry (lc-ms) and regions of interest multivariate curve resolution. *Separations* 9(79): 1-21. <https://doi.org/10.3390/separations9030079>
- [Permen ESDM RI No.07] Peraturan Menteri Energi dan Sumber Daya Mineral Republik Indonesia Nomor 07. 2014. Peraturan Menteri Energi dan Sumber Daya Mineral Republik Indonesia Nomor 07 Tahun 2014 tentang Pelaksanaan Reklamasi dan Pascatambang pada Kegiatan Usaha Pertambangan Mineral dan Batubara. Jakarta: Menteri Energi dan Sumber Daya Mineral Republik Indonesia
- [Permen ESDM RI No.26] Peraturan Menteri Energi dan Sumber Daya Mineral Republik Indonesia Nomor 26. 2018. Peraturan Menteri Energi dan Sumber Daya Mineral Republik Indonesia Nomor 26 Tahun 2018 tentang Pelaksanaan Kaidah Pertambangan Mineral dan Batubara. Jakarta: Menteri Energi dan Sumber Daya Mineral Republik Indonesia
- Perry, S.C., Gateman, S. M., Stephens, L.I., Lacasse, R., Schulz, R., and Mauzeroll, J. 2019. Pourbaix Diagrams as a Simple Route to First Principles Corrosion Simulation. *Journal of The Electrochemical Society*, 166 (11) 3186-3192

- Petrillo, C., Castadi, S., Lanzili, M., Selci, M., Cordone, A., Giovannelli, D., and Isticato, R. 2021. Genomic and physiological characterization of *Bacilli* isolated from salts-pans with plant growth promoting features. *Frontiers in Microbiology*, 12(2021):1-15.doi:10.3389/fmicb.2021.715678
- Pidatala, V.R., Li, K., Sarkar, D., Wusirika, R., and Datta, R. 2018. Comparative metabolic profiling of vetiver (*Chrysopogon zizanioides*) and maize (*Zea mays*) under lead stress. *Chemosphere*, 193 (2018): 903-911. <https://doi.org/10.1016/j.chemosphere.2017.11.087>
- Placek, A., Grobelak, A., and Kacprzak, M. 2016. Improving the phytoremediation of heavy metals contaminated soil by use of sewage sludge. *International Journal of Phytoremediation*, 18(6): 605-618, DOI: 10.1080/15226514.2015.1086308
- Prabhu, M., Li, W.J. , Xiao, M. 2017. Characterization of the Genus *Sinomonas*: From Taxonomy to Applications. *Actinobacteria: Diversity and Biotechnological Applications*. <https://doi.org/10.1016/B978-0-444-63994-3.00012-6>
- Prasetyawati, N.M.D., Siaka, I.M., dan Rita, W.S. 2021. Kandungan logam Pb dan Cu dalam tanaman bayam dan bioavailabilitasnya dalam tanah pertanian dengan pemberian pupuk NPK. *Indonesia E-Journal of Applied Chemistry*, 9(2): 58-67
- Pratama, D., Anas, I., and Suwarno. 2016. Ability of potassium-solubilising microbes to solubilise feldspar and their effects on sorghum growth. *Malaysian Journal of Soil Science*, 20(16): 163-17
- Pratiwi, Narendra, B.H. and Mulyanto, B. 2020. Soil properties improvement and use of adaptive plants for land rehabilitation of post tin mining closure in Bangka Island, Indonesia. *Biodiversitas*, (2): 505-511
- Prijambada, I.D. 2006. Peranan Mikroorganisme pada fitoremediasi tercemar logam berat. *Prosiding PIT PERMI 2006*. http://faperta.ugm.ac.id/download/publikasi_dosen/irfan_dp/pdf/Peranan%20Mikroorganisme%20Pada%20Fitoremediasi%20Tanah%20Tercemar%20Logam%20Berat.pdf
- PT. Timah (Persero) Tbk. 2009. *Analisis Dampak Lingkungan (ANDAL)-Buku II: PERTAMBANGAN TIMAH DI PROVINSI KEPULAUAN BANGKA BELITUNG* PT. TIMAH (Persero) Tbk. Pangkalpinang: PT. Timah (Persero) Tbk.
- PT. Timah (Persero) Tbk. 2010. *Analisis Dampak Lingkungan (ANDAL)-Penambangan Timah Terbuka* Pt. Timah (Persero) Tbk. di Pemali Kabupaten Bangka. Bangka: PT. Timah (Persero) Tbk.

- PT. Timah (Persero) Tbk. 2020. Rekap Data Sumber Dokumen Rencana Reklamasi Periode 2015-2019 Kabupaten Bangka. Bangka: PT. Timah (Persero) Tbk.
- Purwani, J., Erfandi, D., dan Juarsah, I. 2014. Pengaruh pemupukan dan pembenah tanah terhadap populasi bakteri pada lahan sawah bekas tambang timah yang ditanami padi. http://repository.ut.ac.id/4936/1/fmipa2014_10.pdf
- Putri, S.P., Yamamoto, S., Tsugawa, H., and Fukusaki, E. 2013. Current metabolomics: Technological advances. *Journal of Bioscience and Bioengineering*, 116 (1): 9-16
- Quast, C., Pruesse, E., Yilmaz, P., Gerken, J., Schweer, T., Yarza, P., Peplies, J. and Glöckner, F.O. 2012. The SILVA ribosomal RNA gene database project: improved data processing and web-based tools. *Nucleic Acids Research*, 41(13): 590-596
- Qiao, S., Tao, Y., Shan, Q., Wang, J., Chai, T., Gong, S., and Qiao, K. 2021. Physiological and gene expression responses of six annual ryegrass cultivars to Cobalt, Lead, and Nickel stresses. *Internasional Journal of Molecular Sciences*, 22 (13583): 1-16. <https://doi.org/10.3390/ijms222413583>
- Qin, Z., Liao, D., Chen, Y., Zhang, C., An, R., Zeng, Q., and Li, X. 2020. Alterations of *Epimedium pubescens* leaves at different growth stages. *Molecules*, 25(137): 1-14. doi:10.3390/molecules2501013
- Qin, H and Lin, H. 2020. Advances in remediation of heavy metal contaminated soil and water by *Leersia hexandra* Swartz. E3S Web of Conferences 194, 04035 (2020). *ICAEEER 2020*. <https://doi.org/10.1051/e3sconf/202019404035>
- Rahman, M.A., Lee, S.H., Ji, H.C., Kabir, A.H., Jones, S.J. and Lee K.W. 2018. Importance of mineral nutrition for mitigating aluminum toxicity in plants on acidic soils: current status and opportunities. *International Journal of Molecular Sciences*, 19 (3073): 1-28. doi:10.3390/ijms19103073
- Rahimzadeh, M.R., Kazemi, S. and Moghadamnia, A.A., 2017. Cadmium toxicity and treatment: an update *Caspian Journal of Internal Medicine*, 8(3):135-145. <https://doi.org/10.22088/cjim.8.3.135>
- Rahmi, N. 2017. *Kandungan Klorofil pada Beberapa Jenis Tanaman Sayuran sebagai Pengembangan Praktikum Fisiologi Tumbuhan* [Skripsi]. Banda Aceh: Universitas Islam Negeri Ar-Raniry Banda Aceh
- Raj, R.S.D.P., Linda, R. and Babyson, R.S. 2014. Molecular characterization of phosphate solubilizing bacteria (PSP) and plant growth promoting rhizobacteria (PGPR) from pristine soils. *International Journal of Innovative Science, Engineering & Technology*, 1 (7): 317-324. ISSN 2348-7968
- Ramírez, V., Baez, A., López, P., Bustillos, R., Villalobos, M.,Á., Carreño, R., Contreras, J.,L., Muñoz-Rojas, J., Fuentes, L.,E., Martínez, J., and Munive, J.,A. 2019. Chromium hyper-tolerant *Bacillus* sp. MH778713 assists

- phytoremediation of heavy metals by mesquite trees (*Prosopis laevigata*). *Frontiers Microbiology*, 10(1833): 1-12.doi: 10.3389/fmicb.2019.01833
- Ramesh, A., Sharma, S.K., Sharma, M.P., Yadav, N., and Joshi, O.P. 2014. Innoculation of Zinc solubilizing *Bacillus aryabhattai*, strains for improved growth, mobilization and biofortification of Zinc in soybean and wheat cultivation of zinc in soybean and wheat cultivated in vertisol of Central India. *Applied Soil Ecology*, 73 (14), 87-96
- Ratte. H.T. 1999. Bioaccumulation and toxicity of silver compounds: a review. *Environmental Toxicology and Chemistry*, 18(1):89–108
- Razamela, E., Rachmiati, R., dan Trikamulya, T. 2018. Pengaruh dosis dan interval pemupukan zn-30% terhadap produksi dan komponen hasil tanaman teh. *Jurnal Tanaman Industri dan Penyegar*, 5(2):87-94
- Regzui, C., Trinsoutrot-Gattin, I., Benoit, M., Laval, K., and Riahanglet, W. 2021. Linking changes in the soil microbial community to C and N dynamics during crop residue decomposition. *Journal of Integrative Agriculture*, 20(11): 3039–3059. doi: 10.1016/S2095-3119(20)63567-5
- Ren, X.M., Guo, S.J., Tian, W., Chen, Y., Han, H., Chen, E., Li, B.L., Li, Y.Y., and Chen, Z.J. 2019. Effects of plant growth-promoting bacteria (PGPB) inoculation on the growth, antioxidant activity, Cu uptake, and bacterial community structure of rape (*Brassica napus* L.) grown in Cu-contaminated agricultural soil. *Frontiers in Microbiology*, 10(1455):1-12. doi: 10.3389/fmicb.2019.01455
- Renata, L., Grunennvaldt, Paungfoo-Lomhienne, Truemen, S.J., and Gallart, M. 2020. Effect of organic and inorganic fertilizers and *Paraburkholderia* sp. s0s3 on growth and drought respinses of the therapeutic-honey plant *Leptospermum polygalifolium*. *Rhizosphere*, 21 (10047):1-5, ISSN 2452-2198, <https://doi.org/10.1016/j.rhisp.2022.100471>.
- Ribbenstedt, A., Ziarrusta, H., and Benskin, J.P. 2018. Development, characterization and comparisons of targeted and non-targeted metabolomics methods. *PLoS ONE* 13(11):1-18. e0207082.<https://doi.org/10.1371/journal.pone.0207082>
- Ricachenevsky, F.K. and Sperotto, R. There and back again, or always there? The evolution of rice combined strategy for Fe uptake. *Frontiers in Plant Science*, 5(189):1-5
- Rijai, L., Kuncoro, H., and Amir, M. 2017. Chemical profile by LC-MS/MS and some bioactivities from leafs of kolowe (*Chydenanthus excelsus*): a wild and rare plant from Indonesia. *Pharmaceutical Sciences and Research*. 9(2): 111-118
- Rijaludin, M., Guntoro, D. dan Ashari, Y. 2021. Aplikasi Metode Pengindraan Jauh (*Remote Sensing*) untuk Identifikasi Keterdapatan Potensi Bahan Galian

- Pasir Kuarsa di Desa Kotawaringin, Kecamatan Puding Besar, Bangka Belitung. *Bandung Conference Series: Mining Engineering*, 1(1):30-37. <https://doi.org/10.29313/bcsme.v1i1.72>
- Rini, I.A., Oktaviani, I., Asril, M., Agustin R., dan Frima, F.K. 2022. Isolasi dan karakterisasi bakteri penghasil iaa (indole acetic acid) dari rhizosfer tanaman akasia (*Acacia mangium*). *Agro Bali*, 3(2): 210-219
- Robika dan Sari, E. 2019. Pertumbuhan dan kadar klorofil daun *Acacia mangium* pada lahan bekas tambang timah di Pulau Bangka. *Ekotonia*, 4(1): 7-11
- Rohmadi, S., Matius, P., Priahutama, A.A., Ramadani, D.N., Munawarah, J., Maharani, R., dan Rayadin, Y. 2022. Variasi umur tanaman reklamasi terhadap struktur dan komposisi vegetasi di areal reklamasi tambang PT Kideco Jaya Agung, Paser, Kalimantan Timur. *Jurnal Ilmu Lingkungan*, 20(1), 13-21, doi:10.14710/jil.20.1.13-21
- Román-Ponce, B., Reza-Vázquez, D.M., Gutiérrez-Paredes, S., de Haro-Cruz, M. J., Maldonado-Hernández, J., Bahena-Osorio, Y., Estrada-de los Santos, P., Wang, E. T., and Vázquez-Murrieta, M.S. 2017. Plant growth-promoting traits in rhizobacteria of heavy metal resistant plants and their effects on *Brassica nigra* seed germination. *Pedosphere*, 27(3): 511–526
- Römheld, V. and Kirkby, E.A. 2007. Magnesium functions in crop nutrition and yield. *Proceedings of a Conference in Cambridge* (7th Dec. 2007), 151–171
- Rosado, T.L., Freitas, M.S.M., Carvalho, A.J.C., Gontijo, I., Pires, A.A., Vieira, H.D., and Barcellos, R. Soil chemical properties and nutrition of conilon coffee fertilized with molybdenum and nitrogen. *The Revista Brasileira de Ciência do Solo*, 45(21): 1-15. <https://doi.org/10.36783/18069657rbcs20210034>
- Rosmarkam, A., Yuwono N.W. 2002. Ilmu Kesuburan Tanah. Yogyakarta: Kanisius
- Rutkowska, B., Szulc, W., Szychaj-Fabisiak, E., and Pior, N. 2017. Prediction of molybdenum availability to plants in differentiated soil conditions. *Plant Soil Environment*, 63(11):491-497
- Saidy, A.R., Badruzsaufari. 2009. Hubungan antara konsentrasi Cr(VI) dan sifat kimia tanah: informasi awal untuk remediasi lahan bekas tambang di Kalimantan Selatan. *Jurnal Tanah Tropika*, 14(2): 97-103
- Saidi, B. B., Hendri, J., and Suratman. 2021. Assessment of water management technology on rice productivity on iron poisoning rice fields in Jambi. *E3S Web of Conferences*, 306(21):1-8. <https://doi.org/10.1051/e3sconf/202130604018>
- Salim, Z. dan Munadi, E. 2016. Info Komoditi Timah. Jakarta Selatan: Badan Pengkajian dan Pengembangan Perdagangan Kementerian Perdagangan

Republik Indonesia bekerja sama dengan Al Mawardi Prima Anggota IKAPI
DKI Jaya

- Samreen, T., Humaira, Shah, H.U., Ullah, S. and Javid, M. 2013. Zinc effect on growth rate, chlorophyll, protein and mineral contents of hydroponically grown mungbeans plant (*Vigna radiata*). *Arabian Journal of Chemistry*, 1878 (13):1-7, <http://dx.doi.org/10.1016/j.arabjc.2013.07.005>
- Sari, E. 2015. Eksplorasi Vegetasi Fitoremediator dan Bakteri Rizosfer Resisten Logam Berat Pb dan Sn di Lahan Pasca Tambang Timah Pulau Bangka. Bogor: Institut Pertanian Bogor
- Sari, D.P dan Buchori, I. 2015. Efektivitas program reklamasi pasca tambang timah di kecamatan merawang kabupaten bangka. *Jurnal Pembangunan dan Wilayah Kota*, 11(3): 299-312
- Sari, E., Giyanto, dan Sudadi, U. 2016. *Acacia auriculiformis* DAN *Eragrostis chariis*: vegetasi potensial dari lahan bekas tambang timah Pulau Bangka sebagai fitoremediator Pb dan Sn. *Jurnal Ilmu Tanah dan Lingkungan*, 18(1):1-7
- Sari, E., Fiona, D.S., Hidayati, N., Nurtjahya, E. 2017. Analisis Kandungan logam pada tumbuhan dominan di lahan dan kolong pasca penambangan timah Bangka Selatan. *Promine Journal*, 5 (2): 15 - 29
- Sari, E., Henri, Robika, Hidayati, dan N.A. 2018. Isolasi dan Karakteristik Mikrob dari Kolong dan Tanah pada Lahan Bekas Tambang Timah Pulau Bangka [Laporan Akhir Penelitian Dosen Tingkat Jurusan]. Balunijuk: Universitas Bangka Belitung [unpublished]
- Sari, F.I.I dan Andini, D.E. 2019. Identifikasi Mineral pada Tailing Tambang Timah Lepas Pantai di Perairan Pulau Bangka. Prosiding Seminar Nasional Penelitian & Pengabdian Pada Masyarakat. ISBN: 978-979-1373-6-2. <https://doi.org/10.33019/snppm.v3i0.1359>
- Sarma, H. 2011. Metal hyperaccumulation in plants: a review focusing on phytoremediation technology. *Journal of Environmental Science and Technology*, 4(2):118–138
- Savira, Nurtjahya, E., dan Santi, R. 2023. Stomata rumput-rumputan di lahan bekas tambang timah di Bangka. *Jurnal Ilmu Dasar*, 24 (1): 1-8
- Schiavon, M., Nardi, S., dalla Vecchia, F. and Ertani, A. 2020. Selenium biofortification in the 21st century: status and challenges for healthy human nutrition. *Plant Soil*, 453(2020): 245–270. doi: 10.1007/s11104-020-04635-9
- Sekabira, K., Origa, H.O., Mutumba, G., Kakudidi, E. and Basamba, T.A. 2011. Heavy metal phytoremediation by *Commelina benghalensis* (L) and *Cynodon dactylon* (L) growing in urban stream sediments. *Journal of Plant Biochemistry & Physiology*. 3(8): 133-142.

- Sembiring, Z., Bahri, S., Rinawati, Ramadhania, A.S., dan Fiarizky, A.D. 2021. Pengaruh ligan pada sintesis senyawa kompleks Co(II) dengan ligan basa schiff n,n-dimetil-4-(feniliminometil)anilin dan 1,10-fenantrolin. *Analit: Analytical and Environmental Chemistry*, 6(2): 180-188
- Seran, R. 2017. Pengaruh mangan sebagai unsur hara mikro esensial terhadap kesuburan tanah dan tanaman. *Bio – Edu: Jurnal Pendidikan Biologi*, 2(1): 13-14
- Seregin, I.V. and Kozhevnikova, A.D., 2006. Physiological role of nickel and its toxic effects on higher plants. *Russian Journal of Plant Physiology*, 53 (2), 257–277. <https://doi.org/10.1134/s1021443706020178>
- Setyaningsih, S. 2012. Using cluster analysis study to examine the successful performance entrepreneur in Indonesia. *Procedia Economy Finance*. 4 (12): 286 – 298.
- Setyowati, R.D.N., Amala, N.A., dan Aini, N.N.U. 2017. Studi pemilihan tanaman revegetasi untuk keberhasilan reklamasi lahan bekas tambang. *Al-Ard Jurnal Teknik Lingkungan*, 3(1): 14-20
- Shabbir, Z., Sardar A., Shabbir, A., Abbas, G., Shamshad, S., Khalid, S., Natasha, Murtaza, G., Dumat, C. and Shahid, M. 2020. Copper uptake, essentiality, toxicity, detoxification and risk assessment in soil-plant environment. *Chemosphere*, 259 (127436): 1-28
- Shahid, M., Shamshad, S., Rafiq, M., Khalid, S., Bibi, I., Niazi, N.K., Dumat, C., and Rashid, M.I. 2017. Chromium speciation, bioavailability, uptake, toxicity and detoxification in soil-plant system: a review. *Chemosphere*, 178(17):513–533. <https://doi.org/10.1016/j.chemosphere.2017.03.074>
- Shareef, R.S., Mamat, A.S. and Al-Shaheen. The effect of soil pH and cadmium on nitrogen, phosphorus and chlorophyll contents in corn (*Zea mays* L.). *Journal of Advanced Research in Applied Chemistry & Chemical Engineering*, 5(1&2): 12-17
- Sharma, P. and Dubey, R.S., 2005. Lead toxicity in plants. *Brazilian Journal of Plant Physiology*, 17 (1): 35–52. DOI: <https://www.scielo.br/pdf/bjpp/v17n1/a04v17n1>. Sharma, R.K., Agrawal, M., 2005
- Sianturi, R.K., Heriawan, M.N. dan Syafrizal. 2020. Analisis spasi lubang bor untuk mengevaluasi sumberdaya timah aluvial dan mineral ikutannya di Pulau Bangka dengan *global estimation variance*. *Riset Geologi dan Pertambangan*, 30(2): 153-170. DOI: 10.14203/risetgeotam2020.v30.1115
- Signes-Pastor, A., Burló, F., Mitra, K. and Carbonell-Barrachina, A. 2004. Arsenic biogeochemistry as affected by phosphorus fertilizer addition, redox potential and pH in a west Bengal (India) soil. *Geoderma*, 137(4): 504–510.

- Singh, E., Sharma, S., Pareek, A., Dwivedi, J., Yadav, S., and Sharma, S. 2011. Phytochemistry, traditional uses and cancer chemopreventive activity of Amla (*Phyllanthus emblica*): The Sustainer. *Journal of Applied Pharmaceutical Science*, 2(1):176-183
- Singh, S., Tripathi, D.K., Singh, S., Sharma, S., Dubey, N.K., Chauhan, D.K., and Vaculík, M. 2017. Toxicity of aluminium on various levels of plant cells and organism: A review. *Environmental and Experimental Botany*, 137 (17): 177–193
- Singh, K.N. and Narzary, D. 2021. Heavy Metal tolerance of bacterial isolates associated with overburden strata of an opencast coal mine of Assam (India). *Environmental Science and Pollution Research*, 28(44) 1-21. <https://doi.org/10.1007/s11356-021-15153-1>
- Siswanto, B. 2018. Sebaran unsur hara N, P, K dan pH pada tanah. *Buana Sains*, 18(2): 109-124
- Sitorus, S.R.P., Kusumastuti, dan Badri, L.N. 2008. Karakteristik dan teknik rehabilitasi lahan pasca penambangan timah di Pulau Bangka dan Singkep. *Jurnal Tanah dan Iklim*, 27(2008):57-74. ISSN 1410 – 7244
- Smolders, E. 2001. Cadmium uptake by plants. *International Journal of Occupational Medicine and Environmental Health*, 14(2):177—183
- Soerianegara, I. dan Indrawan, A. 1998. *Ekologi Hutan Indonesia*. Bogor: Institut Pertanian Bogor.
- Solikhah, R., Purwantoyo E. dan Rudyatmi, E. 2019. Aktivitas antioksidan dan kadar klorofil kultivar singkong di daerah Wonosobo. *Life Science*, 8(1): 86–95
- Song, M.K., Wang, Y.J., Jiang, L.F., Peng, K., Wei, Z.K., Zhang, D.Y., Li, Y.T., Zhang, G., and Luo, C.L. 2019. The complex interactions between novel DEHP-metabolising bacteria and the microbes in agricultural soils. *Science of The Total Environment*, 660(2019): 733–740. <https://doi.org/10.1016/j.scitotenv.2019.01.052>.
- Soriano, M.C.H. and Lopez, J.C.J. 2014. Metabolomics for soil contamination assessment. *Intech*: 459-481 <http://dx.doi.org/10.5772/58294>
- Šrut, M., Menke, S., Höckner, M., Sommer, S. 2019. Earthworms and cadmium – Heavy metal resistant gut bacteria as indicators for heavy metal pollution in soils?. *Ecotoxicology and Environmental Safety*, 171 (19) 843–853
- Stanojkovic-Sebic, A., Pivic, R., Josic, D., Dinic, A. and Stanojkovic, A. 2015. Heavy metals content in selected medicinal plants commonly used as components for herbal formulations. *Tarım Bilimleri Dergisi- Journal of Agricultural Sciences*, 21(15): 317-325

- Stanton C., Sanders D., Kr amer U., and Podar D. 2022. Zinc in plants: Integrating homeostasis and biofortification. *Molecular Plant*,15(22): 65–85.
- Stefanou, S. and Papazafeiriou, A.Z. 2013. Effects of iron and aluminum oxides and clay content on penetration resistance of five Greek soils. *Eurasian Journal of Soil Science*, 2 (13): 122 – 130
- Sterckeman, T., Douay, F., Baize, D., Fourier, H., Proix, N. and Schvartz, C. 2006. Trace elements in soils developed in sedimentary materials from northern France. *Geoderma*, 136(6): 912–929
- Sujitno, S. 2007. *Sejarah Penambangan Timah di Indonesia Abad ke-18 – Abad ke-20*. Bangka: PT.Timah (Persero) Tbk.
- Sukarjo, Hidayah, A., dan Zulaehah, I. 2018. Pengaruh Pupuk terhadap Akumulasi dan Translokasi Kadmium dan Timbal di Tanah dan Tanaman. Seminar Nasional Pendidikan Biologi dan Saintek III. ISSN: 2527-533X.
- Sukarman dan Gani, R.A. 2017. Lahan bekas tambang timah di Pulau Bangka dan Belitung, Indonesia dan kesesuaiannya untuk komoditas pertanian. *Jurnal Tanah dan Iklim*, 41(2): 21-33
- Sukaraman, Gani, G. A., and Asmarhansyah. 2020. Tin mining process and its effects on soils in Bangka Belitung Islands Province, Indonesia. *Journal of Soil Science and Agroclimatology*, 17(2): 180-189 (doi: 10.20961/stjssa.v17i2.37606)
- Sumanta, N., Haque, C.I., Nishika, J. and Suprakash, R. 2014. Spectrophotometric analysis of chlorophylls and carotenoids from commonly grown fern species by using various extracting solvents. *Research Journal of Chemical Sciences*, 4(9), 63-69 ISSN 2231-606X
- Sun, X., Zhou, Y., Tan, Y., Wu, Z., Lu, P., Zhang, G., and Yu, F. 2018. Restoration with pioneer plants changes soil properties and remodels the diversity and structure of bacterial communities in rhizosphere and bulk soil of copper mine tailings in Jiangxi Province, China. *Environmental Science and Pollution Research* 25(18): 22106–22119. <https://doi.org/10.1007/s11356-018-2244-3>
- Sun, L., Zhang, M., Liu, X., Mao, Q., Shi, C., Kochian, L.V., and Liao, H.2020. Aluminium is essential for root growth and development of tea plants (*Camellia sinensis*). *Journal of Integrative Plant Biology*, 62(7): 984-997
- Sun Y., Luo, J., Feng, P., Yang, F., Liu, Y., Liang, J., Wang, H., Zou, Y., Ma, F. and Zhao, T.2022. MbHY5-MbYSL7 mediates chlorophyll synthesis and iron transport under iron deficiency in *Malus baccata*. *Frontiers in Plant Science*, 13(22):1-13 doi: 10.3389/fpls.2022.1035233
- Sunarti, S., Fitriana,V., dan Suharyanto. 2018. Tingkat kesamaan *Acacia mangium*, *Acacia auriculiformis*, dan hibridnya berdasarkan sifat anatomi akar, batang dan daun. *Jurnal Ilmu Kehutanan*, 12(18): 234-247

- Suryana, Iskandar, J., Parikesit, Partasasmita, R. dan Irawan, B. (2018). Struktur vegetasi kawasan hutan pada zona ketinggian berbeda di kawasan gunung galunggung Kabupaten Tasikmalaya Jawa Barat. *Jurnal Ilmu Lingkungan*, 16(2), 130-135, doi:10.14710/jil.16.2.130-135
- Susana, R. dan Suswati, D. 2011. Ketersediaan Cd, gejala toksisitas dan pertumbuhan 3 spesies *Brassicaceae* pada media gambut yang dikontaminasi kadmium (Cd). *Jurnal Perkenbunan dan Lahan Tropika*, 1(11): 9-16
- Susilowati, D.N., Sudiana, I.M., Mubarik, N.R., Suwanto, A. 2015. Species and functional diversity of rhizobacteria of rice plant in the coastal soils of Indonesia. *Indonesian Journal of Agricultural Science*, 16(1):39-50
- Sutanto, R. 2005. Dasar-Dasar Ilmu Tanah. Konsep dan Kenyataan. Yogyakarta: Kanisius
- Sutarman. 2019. Mikrobiologi Tanah. Sidoarjo: UMSIDA Press
- Sutedjo, M.M. 2010. Pupuk dan Cara Pemupukan. Jakarta: Rineka Cipta
- Sutedjo, Warsudi. 2017. menakar sifat invasif spesies akasia mangium (*Acacia mangium* Willd.) di hutan penelitian dan pendidikan Bukit Soeharto. *Jurnal Hutan Tropis*, 1(1): 82-89
- Svensson, T. Kylin, H. Montelius, M. Sanden, P. and Bastviken, D. (21). Chlorine cycling and the fate of Cl in terrestrial environments. *Environmental Science and Pollution Research*. 28(21):7691-7709. <https://doi.org/10.1007/s11356-020-12144-6>
- Swenson, T.L., Karaoz, U., Swenson, J.M., Bowen, B.P., and Northen, T.R. 2018. Linking soil biology and chemistry in biological soil crust using isolate exometabolomics. *Nature Communications*, 19(18):1-10
- Syafrizal, Hidayat, A.Y., Hadiana, W.M., Rifaldi, M.D., dan Rasma, P. 2022. Karakterisasi pasir kuarsa di daerah Bangka sebagai bahan baku panel surya. *Prosiding TPT XXXI Perhapi 2022*
- Tang, Z., Wang, H.Q., Chen, J., Chang, J.D., and Zhao, F.J. 2023. Molecular mechanisms underlying the toxicity and detoxification of trace metals and metalloids in plants. *Journal of Integrative Plant Biology*, 65 (23): 570–593. <https://doi.org/10.1111/jipb.13440>
- Tarekegn, M.M., Salilih, F.Z., and Ishetu, A.I. 2020. Microbes used as a tool for bioremediation of heavy metal from the environment. *Cogent Food & Agriculture*, 6(1):1-10. DOI: 10.1080/23311932.2020.1783174
- Tarvainen, T., Albanese, S., Birke, M., Ponavic, M., Reimann, C., and Team. 2013. Arsenic in agricultural and grazing land soils of Europe. *Applied Geochemistry*, 28(13): 2–10. <https://doi.org/10.1016/j.apgeochem.2012.10.005>.

- Teferi, M.A. 2022. Analysis of Organic Halogens by Combustion Ion Chromatography in Sediments and Aquatic Vegetation [Thesis]. Sweden: Department of Physics, Chemistry, and Biology (IFM) Linköping University
- Teeling, H., and Glockner, F.O. 2012. Current opportunities and challenges in microbial metagenome analysis a bioinformatic perspective. *Briefings in Bioinformatics*, 13(6): 728-742
- Teng, L., Liu, H., Chu, X., Song, X. and Shi, L. 2021. Effect of precipitation change on the photosynthetic performance of *Phragmites australis* under elevated temperature conditions. *Peer Journal*, 10(22): 1-22 DOI 10.7717/peerj.13087
- Terashima, I., Fujita, T., Inoue, T., Chow, W.S. and Oguchi, R. 2009. Green light drives leaf photosynthesis more efficiently than red light in strong white light: revisiting the enigmatic question of why leaves are green. *Plant Cell Physiology*, 50(9):684–697
- Tetzner, N.F., Maniero, M.G., Rodrigues-Silva, C., and Rath, S. 2016. On-line solid phase extraction-ultra high performance liquid chromatography-tandem mass spectrometry as a powerful technique for the determination of sulfonamide residues in soils. *Journal of Chromatography A*, 1452(16): 89–97
- Tewari, R. K., Kumar, P., Sharma, P. N. and Bisht, S. S. 2002. Modulation of oxidative stress responsive enzymes by excess cobalt. *Plant Science*, 162(2): 381–388
- Thomas, Gilbert, J., and Meye, F. 2012. Metagenomics - a guide from sampling to data analysis. *Microbial Informatics and Experimentation*, 2(3): 1-12. <http://www.microbialinformaticsj.com/content/2/1/3>
- Tipayno, S.,C., Truu,J., Samaddar, S., Truu, M., Preem, J.,K., Oopkaup, K., Espenberg, M., Chatterjee, P., Kang, Y., Kim, K., and Sa, T. 2018. The bacterial community structure and functional profile in the heavy metal contaminated paddy soils, surrounding a nonferrous smelter in South Korea. *Ecology and Evolution*, 8(12):6157-6168
- Tiwari, S. and Lata, C. Heavy Metal Stress, Signaling, and Tolerance Due to Plant-Associated Microbes: An Overview. *Frontiers in Plant Sciences*, 9(452):1-12. doi: 10.3389/fpls.2018.00452
- Tjahyana, B.E. dan Ferry,Y. 2011. Revegetasi Lahan Bekas Tambang Timah dengan Tanaman Karet (*Hevea brasiliensis*). Prosiding Seminar Nasional Inovasi Perkebunan 2011: 117-123
- Trash, J.C. 2019. Culturing the Uncultured: Risk versus Reward. *MSystems* 4(3):1-6. <https://doi.org/10.1128/mSystems.00130-19>.

- Triyono. 2003. Teknik Sampling dalam Penelitian. Penataran Analisis Data Penelitian bagi Dosen PTS Kopertis XI, Kalimantan
- Ullah, H., Liu, G. J., Yousaf, B., Ali, M. U., Irshad, S., Abbas, Q. and Ahmad, R. 2019. A comprehensive review on environmental transformation of selenium: recent advances and research perspectives. *Environmental Geochemistry and Health*, 41 (18): 1003–1035. doi: 10.1007/s10653-018-0195-8
- Uraguchi, S. and Fujiwara, T. 2012. Cadmium transport and tolerance in rice: perspectives for reducing grain cadmium accumulation. *Rice* 5(5):1-8. doi: 10.1186/1939-8433-5-5
- [US-EPA] United States Environmental Protection Agency. 2018. *Lead at Superfund Sites: Human Health*. <https://www.epa.gov/superfund/lead-superfund-sites-human-health> [19 Januari 2021]
- van Steenis CGGJ. 2006. *Flora Pegunungan Jawa*. Jenny A. Kartawinata, penerjemah. Bogor: LIPI Press. Terjemahan dari: The Mountain Flora of Java
- Vandekerckhove, T.T.M., Coomans, A., Cornelis, K., Baert, P., and Gillis, M. 2002. Use of the *Verrucomicrobia*-Specific Probe EUB338-III and Fluorescent In Situ Hybridization for Detection of “*Candidatus Xiphinematobacter*” Cells in Nematode Host. *Applied and Environmental Microbiology*, 68(6): 3121-3125. DOI: 10.1128/AEM.68.6.3121–3125.2002
- Veriady. 2007. Studi Pemanfaatan Lahan Pasca Tambang Timah (Studi Kasus PT Timah (Persero) Tbk di Pulau Bangka) [Tesis]. Jakarta (ID): Universitas Indonesia.
- Vieira, J.D., dan Stefenon. V.M. 2017. Soil bioremediation in heavy metal contaminated mining areas: a microbiological/biotechnological point of view. *Journal of Advances in Microbiology*, 4(1): 1-10
- Violante, A., Cozzolino, V., Perelomov, L., Caporale, A.G., Pigna, M., 2010. Mobility and bioavailability of heavy metals and metalloids in soil environments. *Journal of Soil Science and Plant Nutrition*, 10 (3): 268–292. DOI: 10.4067 / S0718-95162010000100005.
- Waghmare, R.C. and Gadre, R. 2018. Impact of essential micronutrient, Zn, on growth and chlorophyll biosynthesis in young zea mays seedlings. *American Journal of Plant Sciences*, 9(18), 1855-1867. <https://doi.org/10.4236/ajps.2018.99135>
- Wang, Q., Garrity, G.M., Tiedje, J.M. and Cole, J.R. 2007. Naive Bayesian classifier for rapid assignment of rRNA sequences into the new bacterial taxonomy. *Applied and Environmental Microbiology*, 73(16):5261-5267. doi: 10.1128/AEM.00062-07
- Wang, Y., Xu, L., Shen, H., Wang, J., Liu, W., Zhu, X., Wang, R., Sun, X., Liu, L. 2015. Metabolomic analysis with GC-MS to reveal potential metabolites

- and biological pathways involved in Pb & Cd stress response of radish roots, *Scientific Reports*, 5(18296): 1-13, DOI: 10.1038/srep18296
- Wang, X., Hou, L., Lu, Y., Wu, B., Gong, X., Liu, M., Wang, J., Sun, Q., Vierling, E., Xu, S. 2018a. Metabolic adaptation of wheat grain contributes to a stable filling rate under heat stress. *Journal of Experimental Botany*, 2018(69):5531–5545
- Wang, X., Tian, Q., Li, Q., Liao, C., He, M., and Liu, F. 2018b. Lignin characteristics in soil profiles in different plant communities in a subtropical mixed forest. *Journal of Plant Ecology*, 11(4):560–568
- Wang, C., Huang, Y., Yang, X., Xue, W., Zhang, X., Zhang, Y., Pang, J., Liu, Y., and Liu, Z. 2020. Burkholderia sp. Y4 inhibits cadmium accumulation in rice by increasing essential nutrient uptake and preferentially absorbing Cadmium. *Chemosphere*, 252 (2020) 126603: 1-10
- Wang, H., Gu, M., Cui, J.X. and Shi, K. 2009. Effects of light quality on CO₂ assimilation, chlorophyll-fluorescence quenching, expression of Calvin cycle genes and carbohydrate accumulation in *Cucumis sativus*. *Journal of Photochemistry and Photobiology B: Biology*, 96 (9): 30–37
- Wang, Q., Chen, M., Hao, Q., Zeng, H., and He, Y. Research and progress on the mechanism of iron transfer and accumulation in rice grains. *Plants*, 10 (2610): 1-18. <https://doi.org/10.3390/plants10122610>
- Wang, Z., Hassan, M.U., Nadeem, F., Wu, L., Zhang, F. and Li, X. 2020. Magnesium fertilization improves crop yield in most production systems: a meta-analysis. *Frontiers in Plant Science*, 10(1727):1-10. doi: 10.3389/fpls.2019.01727
- Warsito, M.F. 2018. Analisis Metabolomik : Metode modern dalam pengujian kualitas produk herbal. *BioTrends*, 9(2): 38-47
- [WHO] World Health Organization. 1980. Tin and Organotin Compounds: A Preliminary Review. Finland: United Nations Environment Programme and the World Health Organization
- [WHO] World Health Organization. 2005. Tin and inorganic tin compounds. Concise International Chemical Assessment Document 65. ISBN 92 4 153065 0. Geneva: WHO Press
- White, J.R., Nagarajan, N. and Pop, M. 2009. Statistical methods for detecting differentially abundant features in clinical metagenomic samples. *PLOS Computational Biology* 5(4): 1-11. doi:10.1371/journal.pcbi.1000352
- White, P. J. 2018. Selenium metabolism in plant. *Biochimica et Biophysica Acta (BBA) - General Subjects*, 1862 (18): 2333–2342. doi: 10.1016/j.bbagen.2018.05.006

- Widana, S.K. 2013. Petrografi dan geokimia unsur utama granitoid pulau bangka: kajian awal tektonomagmatisme. *Eksplorium*, 34(2):1-16
- Wilhelm, R.C., Derito, C. P.Shapleigh, J., Madsen, E.L., And Huckley, D.H. (2021). Phenolic acid-degrading *Paraburkholderia* prime decomposition in forest. *ISME Communications*,1(4): 1-12
- Wuana, R.A. and Okieimen, F.E. 2011. Heavy Metals in Contaminated Soils: A Review of Sources,Chemistry, Risks and Best Available Strategies for Remediation International. *ISRN Ecology*, 402(11):1-20. doi:10.5402/2011/402647
- Wulan, S.N., Apriadi, T., dan Melani, W.R. 2020. Studi fitoremediasi serapan besi (Fe) dari kolam bekas tambang bauksit menggunakan purun (*Eleocharis* sp.). *LIMNOTEK Perairan Darat Tropis di Indonesia*, 27(2): 67–78
- Wulandari, D., Agus, C., Rosita, R., Mansur, I., and Maulana, A.F. 2022 Impact of Tin mining on soil physio-chemical properties in Bangka, Indonesia. *Jurnal Sains dan Teknologi Lingkungan*, 14(2):114-121
- Xiao, J.F., Zhou, B., and Resson, H.W. 2012. Metabolite identification and quantitation in LC-MS/MS-based metabolomics. *Trends Analytical Chemistry* . 1(32): 1–14. doi:10.1016/j.trac.2011.08.009.
- Xie,Y., Fan, J., Zhu, W., Amombo, E., Lou, Y., Chen, L., and Fu, J. 2016. Effect of heavy metals pollution on soil microbial diversity and bermudagrass genetic variation. *Frontiers in Plant Sciences*. 7(755):1-12 doi: 10.3389/fpls.2016.00755
- Xu, S., Hu, C., Hussain, S., Tana, Q., Wua, S., and Suna, X. 2018. Metabolomics analysis reveals potential mechanisms of tolerance to excess molybdenum in soybean seedlings. *Ecotoxicology and Environmental Safety*, 164 (18): 589–596
- Xu, A., Li, L., Xie, J., Zhang, R., Luo, Z., Cai, L., Liu, C.,Wang, L., Anwar, S. and Jiang, Y. 2022. Bacterial diversity and potential functions in response to long-term nitrogen fertilizer on the semiarid loess plateau. *Microorganisms*, 10(1579):1-18. <https://doi.org/10.3390/microorganisms10081579>
- Yabe, S., Sakai, Y., Abe, K., Yokota, A., 2017. Diversity of Ktedonobacteria with actinomycetes like morphology in terrestrial environments. *Microbes and Environments*, 32(17): 61–70. <https://doi.org/10.1264/jsme2.ME16144>.
- Yaman M.2014. Teucrium (*Teucrium polium* L.) as novel discovered hyperaccumulator for phytoextraction of Ni contaminated soils. *Ekoloji*, 23(90):81–89
- Yamamura, S., Yamashita, M., Fujimoto, N., Kuroda, M., Kashiwa, M., Sei, K., Fujita, M. , and Ike, M. 2007. *Bacillus selenatarsenatis* sp. nov. A selenate and arsenate-reducing bacterium isolated from the effluent drain of a glass-

- manufacturing plant. *International Journal of Systematic and Evolutionary Microbiology*, 57, 1060-1064
- Yan, A., Wang, Y., Tan, S.N., Mohd, Yusof, M..L., Ghosh, S., and Chen, Z. 2020. Phytoremediation: a promising approach for revegetation of heavy metal-polluted land. *Frontiers in Plant Sciences*. 11(359):1-15.doi: 10.3389/fpls.2020.00359
- Ye, W.L., Wood, B.A., Stroud, J.L., Andralojc, P.J., Raab, A., McGrath, S.P., Feldmann, J. and Zhao, F.-J. 2010 Arsenic speciation in phloem and xylem exudates of castor bean. *Plant Physiology*, 154(10): 1505–1513.
- Yu, K., van den Hoogen, J., Wang, Z., Averill, C., Routh, D., Smith, G.R., Drenovsky, R. E., Scow, K.M., Mo, F., Waldrop, M.P., Yang, Y., Tang, W., de Vries, F.T., Bardgett, R.D., Manning, P., Bastida, F., Baer, S.G., Bach, E.M., Garcia, C., Wang, Q., Ma, L., Chen, B., He, X., Teurlincx, S., Heijboer A., Bradley, J.A., and Crowther, T.W. 2022. The biogeography of relative abundance of soil fungi versus bacteria in surface topsoil. *Earth System Science Data*, 14 (5194): 4339–4350. <https://doi.org/10.5194/essd-14-4339-2022>
- Yuan, J., Liu, R., Sheng, S., Fu, H., and Wang, X. 2022. Untargeted LC–MS/MS-based metabolomic profiling for the edible and medicinal plant *salvia miltiorrhiza* under different levels of cadmium stress. *Frontiers in Plant Sciences*, 13(889370):1-13. doi: 10.3389/fpls.2022.889370
- Yue, C., Wang, Z. and Yang, P. 2021. Review: the effect of light on the key pigment compounds of photosensitive etiolated tea plant. *Botanical Studies*, 62(21):1-15. <https://doi.org/10.1186/s40529-021-00329-2>
- Yuniarti, A. , Solihin, E., dan Putri, A.T.A. 2020. Aplikasi pupuk organik dan N, P, K terhadap pH tanah, P-tersedia, serapan P, dan hasil padi hitam (*Oryza sativa* L.) pada inceptisol. *Jurnal Kultivasi*, 19(1):1040-1046
- Yussa, Putri, dan Kuriniawan, A. 2023. Sosialisasi bahaya kadar logam berat timbal pada ikan dari kolong bekas tambang di desa Sungaiselan Atas, Bangka Tengah . *Literasi: Jurnal Pengabdian pada Masyarakat*, 3(1): 97-102.
- Zabin, S.A. and Howladar, S.M. 2015. Accumulation of Cu, Ni and Pb in selected native plants growing naturally in sediments of water reservoir. *Natural Science*, 13(3):11-17
- Zaborowska, M., Kucharski, J. and Wyszowska J. 2015. Biological activity of soil contaminated with cobalt, tin, and molybdenum. *Environmental Monitoring and Assessment*, 188(398):1-10

- Zahradnik, J., Jirasek, J., Stary, J., and Sivek, M. 2020. Production, reserves, and processing of feldspar and feldspathoid rocks in the czech republic from 2005 to 2019—an overview. *Minerals*, 10(722):1-21. doi:10.3390/min10080722
- Zakiyah, M., Manurung, T.G. dan Wulandari, R.S. 2018. Kandungan klorofil daun pada empat jenis pohon di arboretum sylva indonesia pc. Universitas Tanjungpura. *Jurnal Hutan Lestari*, 6(1): 48-55
- Zancanaro, E., Teatini, P., Scudireo, E. and Morari, F. 2020. Identification of the origins of vadose-zone salinity on an agricultural site in the venice coastland by ionic molar ratio analysis. *Water*, 12(3363): 1-16. doi:10.3390/w12123363
- Zambounis, A., Osathanunkul, M. and Madesis, P. 2019. Metagenome data of bacterial diversity in pear (*Pyrus communis* L.) rhizospheres associated with Phytophthora infection and amino acid treatment. *Elsevier*, 26 (19):1-7
- Zhang, C., Ge, Y., Yao, H., Chen, X., and Hu, M. 2012. Iron Oxidation-Reduction and Its Impacts on Cadmium Bioavailability in Paddy Soils: A Review. *Frontiers Environment Science Engineering* 6(4): 509–517
- Zhang, J., Xiao, Q., and Wang, P. 2021. Phosphate-Solubilizing Bacterium *Burkholderia* sp. strain N3 Facilitates The Regulation of Gene Expression and Improves Tomato Seddling Growth under Cadmium Stress. *Ecotoxicology and Environmental Safety*, 217(21):1-12. <https://doi.org/10.1016/j.ecoenv.2021.112268>
- Zhang, M., Riaz, M., Xia, H., Li, Y., Wang, X., and Jiang, C. 2022. Four-year biochar study: Positive response of acidic soil microenvironment and citrus growth to biochar under potassium deficiency conditions. *Science of the Total Environment*, 813(22):1-11. <http://dx.doi.org/10.1016/j.scitotenv.2021.152515>
- Zhou, J.; Sun, X.; Chen, C.; Chen, J. 2023. The Effect of Molybdenum Fertilizer on the Growth of Grass–Legume Mixtures Related to Symbiotic Rhizobium. *Agronomy*, 13(495): 1-10. <https://doi.org/10.3390/agronomy13020495>
- Zhou, X., Li, Y. and Lai, F. 2018. Effects of different water management on absorption and accumulation of selenium in rice. *Saudi Journal of Biological Sciences*, 25(6): 1178– 1182. doi: 10.1016/j.sjbs.2017.10.017
- Zhou, X., Yang, J., Kronzucker, H.J. and Shi, W. 2020. Selenium Biofortification and Interaction With Other Elements in Plants: A Review. *Frontiers in Plant Science*, 11(20):1-18. doi: 10.3389/fpls.2020.586421
- Zhou, Y., Gong, Z., Yang, Z., Yuan, Y., Zhu, J., Wang, M., Yuan, F., Wu, S., Wang, Z., Yi, C., Xu, T., YOM, m., Gu, M. and Liang, G. 2013. Mutation of the light-induced yellow leaf 1 gene, which encodes a geranylgeranyl reductase, affects chlorophyll biosynthesis and light sensitivity in rice. *Plos One*, 8(9): 1-14. doi:10.1371/journal.pone.0075299

- Zhou, Y., Wei, W., Wang, X. and Lai R. 2009. Proposal of *Sinomonas flava* gen. nov., sp. nov., and description of *Sinomonas atrocyanea* comb. nov. to accommodate *Arthrobacter atrocyaneus*. *International Journal of Systematic and Evolutionary Microbiology*, 59(9): 259–263. DOI 10.1099/ijs.0.000695-0000695
- Zulaehah, I., Sukarjo, dan Harsanti, E.S. 2020. Pengujian baku mutu logam nikel pada tekstur tanah yang berbeda dengan indikator tanaman padi. *Jurnal Tanah dan Sumberdaya Lahan*, 7(2): 263-271. doi: 10.21776/ub.jtsl.2020.007.2.10 <http://jtsl.ub.ac.id> 263
- Zulfiqar, U., Yasmin, A., and Fariq, A .2022. Metabolites produced by inoculated *Vigna radiata* during bacterial assisted phytoremediation of Pb, Ni and Cr polluted soil. *PLoS ONE*, 17(11):1-18. <https://doi.org/10.1371/journal.pone.0277101>