



DAFTAR PUSTAKA

- Adam, G.O., Fufeyin, P.T., Okoro, S.E., Ehinomen, I. (2015). Bioremediation, Biostimulation and Bioaugmentation: A Review. *Environmental Bioremediation and Biodegradation*, (3), 28-39.
- Adeniji, A. (2004). Bioremediation of Arsenic, Chromium, Lead, and Mercury. *US Environmental Management Protection Agency*, (August), 1–43.
- Adeyemi, A.O. (2009). Biological Immobilization of Lead from Lead Sulphide by *Aspergillus niger* and *Serpula himantoides*. *International Journal Environmental.*, 3 (201373), 477-482.
- Adimihardja, K. (2001). Participatory Research Appraisal (PRA) dalam Pelaksanaan Pengabdian Kepada Masyarakat. *Bandung: Humaniora Utama Press*.
- Agus, F., Sulaeman, Suparto & Eviati. (2005). Petunjuk Teknis Analisis Kimia Tanah, Tanaman, Air dan Pupuk. *Balai Penelitian Tanah*, (2), 81–87. <https://doi.org/10.1007/s13398-014-0173-7.2>
- Ahmad, I., Hayat, S., Ahmad, A., and Inam, A. (2005). Effect of Heavy Metal on Survival of Certain Groups of Indigenous Soil Microbial Population. *J.Appl.Sci.Environ., Mgt*, 2–8.
- Alexandrino, M., Macías, F., Costa, R., Gomes, N. C. M., Canário, A. V. M., and Costa, M. C. (2011). A Bacterial Consortium Isolated from an Icelandic Fumarole Displays Exceptionally High Levels of Sulfate Reduction and Metals Resistance. *Journal of Hazardous Materials*, 187(1-3), 362–370.
- Alhasawi, A., Costanzi, J., Auger, C., Appanna, N. D., & Appanna, V. D. (2015). Metabolic Reconfigurations Aimed at The Detoxification of A Multi-Metal Stress in *Pseudomonas fluorescens*: Implications for The Bioremediation of Metal Pollutants. *Journal of Biotechnology*, 200, 38–43. <https://doi.org/10.1016/j.jbiotec.2015.01.029>
- Ali, H., Khan, E., & Anwar, M. (2013). Chemosphere Phytoremediation of Heavy Metals - Concepts and Applications. *Chemosphere*, 91(7), 869–881. <https://doi.org/10.1016/j.chemosphere.2013.01.075>
- Alloway, B. J. (1995). Heavy Metals In Soils. *Blackie Academic and Professional* (second edi). Chapman & Hall.
- Amanda, D.A., dan Hadisusanto, S. (2016). Akumulasi Merkuri Di Danau Lebo Kabupaten Sumbawa Barat Nusa Tenggara Barat. *Thesis S-2 Ilmu Biologi UGM*.
- Amezcu-allieri, M. A., & Lead, J. R. (2005). Impact of Microbial Activity on Copper, Lead and Nickel Mobilization During The Bioremediation of Soil PAHs. *Chemosphere*, 61, 484–491. <https://doi.org/10.1016/j.chemosphere.2005.03.002>
- Anonim. (2016). Test America Laboratories, Inc. All rights reserved. Test America & Design™ are trademarks of Test America Laboratories, Inc.



Anyanwu, C. U., Nwankwo, S. C., and Moneke, A. N. (2011). Soil Bacterial Response to Introduced Metal Stress. *International Journal of Basic and Applied Sciences*, (February), 109–115.

Anza, M., Salazar, O., Epelde, L., Becerril, J.M., Alkorta, I., and Garbisu, C. (2019). Remediation of Organically Contaminated Soil through the Combination of Assisted Phytoremediation and Bioaugmentation. *Appl. Sci*, 9, 4757; doi: 10.3390/app9224757

Atlas, R.M and Bartha, R. (1993). Microbial Ecology, Fundamentals and Applications. *The Benjamin/Cummings Publishing Company, Inc. Menlo Park, California*.

Appanna, V. D., and Hamel, R. (1996). Aluminum Detoxification Mechanism in *Pseudomonas fluorescens* is Dependent on Iron. *FEMS Microbiology Letters*, 143, 223–228.

Ayansina, S.A., and Olubukola, O.B. (2017). A New Strategy for Heavy Metal Polluted Environments: A Review of Microbial Biosorbents. *Int J Environ Res Public Health*, 14(1): 94.

Babich, H. (1977). Sensitivity of Various Bacteria, Including *Actinomycetes*, and Fungi to Cadmium and The Influence of pH on Sensitivity. *Applied And Environmental Mikrobiology*, 33(3), 681–695.

Badan Pusat Statistik Kabupaten Landak. (2017). Kecamatan Mandor Dalam Angka. *BPS Kabupaten Landak*.

Bai, H., Zhang, Z., Yang, G., and Li, B. (2008). Bioremediation of Cadmium by Growing Rhodobacter Sphaeroides : Kinetic Characteristic and Mechanism Studies. *Bioresource Technology*, 99, 7716–7722.

Bappeda Kabupaten Landak. (2017). Kajian Lingkungan Hidup Strategis Kabupaten Landak.

Bappeda Kabupaten Landak. (2017). Revisi Rencana Tata Ruang Wilayah Kabupaten Landak.

Barkey, T., Turner, R. R., Vanden Brook, A., and Liebert, C. (1991). The Relationship of Hg (II) Volatilization from a Freshwater Pond to Abundance of Mer Genes in The Gene Pool of The Indigenous Microbial Community. *Microbial Ecology*, 21, 151-161.

Beškoski, V. P., Milic, J., Ilic, M., Miletic, S., Šolevic, T., and Gojic, G. (2011). Ex-Situ Bioremediation of a Soil Contaminated by Mazut (Heavy Residual Fuel Oil) - a Field Experiment. *Chemosphere.*, 83, 34–40.

Bizily, S. P., Rugh, C.L., Meager, R.B. (2000). Phytodetoxification of Hazardous Organomercurials by Genetically Engineered Plant. *Nature Biotechmplogy*, 18, 213-217.

Black, J.G. (2005). *Microbiology: Principles and Explorations*. John Wiley & Sons, Inc.



Brigmon, R., Camper, D., & Stutzenberger, F. (2002). Bioremediation of Compounds Hazardous to Health and The Environment: An Overview. *Progress in Industrial Microbiology*, 36(C), 1–28. [https://doi.org/10.1016/S0079-6352\(02\)80005-4](https://doi.org/10.1016/S0079-6352(02)80005-4)

Buchanan, R. E., and Gibbons, N.E. (1974). Bergey's Manual of Determinative Bacteriology. *Baltimore: The William and Wilkins.*

Canstein, H.V., Li, Y., Leonhauser, J., Haase, E., Felske, A., Deckwer, W.D., and Dobler, I.W. (2002). Spatially Oscillating Activity and Microbial Succession of Mercury Reducing Biofilms in A Technical-Scale Bioremediation System. *Appl. Environ. Microbiol.* Vol 68, 1938–1946.

Cappuccino, J.G. and Sherman, N. (1983). Microbiology: A Laboratory Manual. *California: Addison-Wesley.*

Cerdeira, V. S., Hollenbach, E. B., Maboni, F., Vainstein, M. H., Camargo, F. A. O., Peralba, C. R., and Bento, F. M. (2011). Bioresource Technology Biodegradation Potential of Oily Sludge by Pure and Mixed Bacterial Cultures. *Bioresource Technology*, 102(23), 11003–11010.

Chai, L., Huang, S., Yang, Z., Peng, B., Huang, Y., and Chen, Y. (2009). Cr (VI) Remediation by Indigenous Bacteria in Soils Contaminated by Chromium-Containing Slag. *Journal of Hazardous Materials*, 167, 516–522.

Chang, W. (2012). Dampak Ekonomi Penambangan Emas Bagi Masyarakat Mandor Kalimantan Barat. *Jurnal Masyarakat Indonesia*, Vol. 38, No. 1.

Chemlal, R., Tassist, A., Drouiche, M., Lounici, H., Drouiche, N., and Mameri, N. (2012). Microbiological Aspects Study of Bioremediation of Diesel-Contaminated Soils by Biopile Technique. *International Biodeterioration and Biodegradation*, 75, 201–206.

Choudhary, S., and Sar, P. (2009). Characterization of A Metal Resistant *Pseudomonas* sp. Isolated from Uranium Mine for Its Potential in Heavy Metal (Ni^{2+} , Co^{2+} , Cu^{2+} , and Cd^{2+}) Sequestration. *Bioresource Technology*, 100(9), 2482–2492.

Clarkson, T. W. (1992). Mercury: Major Issues In Environmental Health. *Environ Health Prospect.*, 100, 31–38.

Clemens, S., and Clemens, S. (2015). Review: Molecular Mechanisms of Plant Metal Tolerance and Homeostasis. *Planta*, 212(4), 475–486.

Couto, M. N. P. F. S., Pinto, D., Basto, M. C. P., and Teresa, S. D. (2012). Role of Natural Attenuation, Phytoremediation and Hybrid Technologies in The Remediation of A Refinery Soil with Old/Recent Petroleum Hydrocarbons Contamination. *Environmental Technology*, 3330 (December 2015).

Dariah, A., & Rachman, A. (2006). Pengukuran Infiltrasi. *Sifat Fisik Tanah dan Metode Analisisnya*, 177–186.

Dash, H. R., & Das, S. (2012). Bioremediation of Mercury and The Importance of



Bacterial Mer Genes. *International Biodeterioration & Biodegradation*, 75, 207–213. <https://doi.org/10.1016/j.ibiod.2012.07.023>

Dash, H. R., & Das, S. (2015). Bioremediation of Inorganic Mercury Through Volatilization and Biosorption by Transgenic *Bacillus cereus* BW-03 (PW-05). *International Biodeterioration and Biodegradation*, 103, 179–185. <https://doi.org/10.1016/j.ibiod.2015.04.022>

Dashti, N., Ali, N., Khanafer, M., Al-awadhi, H., Sorkhoh, N., and Radwan, S. (2015). Olive-Pomace Harbors Bacteria with The Potential for Hydrocarbon-Biodegradation, Nitrogen-Fixation and Mercury-Resistance: Promising Material for Waste-Oil-Bioremediation. *Journal of Environmental Management*, 155, 49–57.

Destha, G.B., Sartohadi, J., dan Hadisusanto, S. (2017). Remediasi Tanah Tercemar Merkuri Pada Kawasan Tambang Emas Tradisional Desa Pasanggaran Banyuwangi Dengan Tumbuhan Lokal Sebagai Fitoremediasi Berkelanjutan. *Thesis Magister Ilmu Lingkungan UGM*.

Dhal,B., Thatoi, H. N., Das, N. N., & Pandey, B. D. (2013). Chemical and Microbial Remediation of Hexavalent Chromium from Contaminated Soil and Mining/Metallurgical Solid Waste : A review. *Journal of Hazardous Materials*, 250–251, 272–291. <https://doi.org/10.1016/j.jhazmat.2013.01.048>

Djokic, L., Narancic, T., Biocanin, M., Saljnikov, E., Casey, E., Vasiljevic, B., & Nikodinovic-runic, J. (2013). Phenol Removal from Four Different Natural Soil Types by *Bacillus* sp. *Applied Soil Ecology*, 70, 1–8. <https://doi.org/10.1016/j.apsoil.2013.04.002>

Dobler, W. (2003). Pilot Plant for Bioremediation of Mercury-Containing Industrial Wastewater. *Appl Microbiol Biotechnol*, 124–133.

Donlon, D. L., & Bauder, J. (2012). A General Essay on Bioremediation of Contaminated Soil. <http://waterquality.montana.edu/docs/methane/Donlan.shtml>.

Egli, T. (2015). Microbial growth and physiology: a call for better craftsmanship Front. *Microbiol*, 14 April 2015. <https://doi.org/10.3389/fmicb.2015.00287>

Errasquin, L., and Vasquez, C. (2003). Tolerance and Uptake of Heavy Metals by *Trichoderma atrovivide* Isolated from Sludge. *Chemosphere*. Vol. 50, Issue 1, January 2003, 137-143.

Essa, A. M. M., Macakie, L. E., & Brown, N. L. (2002). Mechanisms of Mercury Bioremediation. *Biochemical Society Transactions*, 30(4). <https://doi.org/10.1042/BST0300672>

Evangelou, V.P., Zhang, Y. L. (1995). Pyrite Oxidation Mechanisms and Acid Mine Drainage Prevention. *Critical Reviews In Environmental Science And Technology*, Vol. 25 (Issue 2).

Fahruddin. (2014). Bioteknologi Lingkungan. *Bandung: Alfa Beta*.



- Fang, H., Zhou, W., Cao, Z., Tang, F., Wang, D., Liu, K., Yu, Y. (2012). Combined Remediation of DDT Congeners and Cadmium in Soil by *Sphingobacterium* sp. D-6 and *Sedum Alfredii* Hance. *Journal of Environmental Sciences*, 24(6), 1036–1046.
- Farhadian, M., Duche, D., and Larroche, C. (2008). In Situ Bioremediation of Monoaromatic Pollutants In Groundwater: A Review. *Bioresource Technology*, 99, 5296–5308.
- Fatimah, A.S., dan Rahayuningsih, E. (2011). Bioremediasi Sebagai Usaha Konservasi Lingkungan Pada Pencemaran Limbah Pemboran Minyak Di Job Pertamina-Petrochina East Java Tuban-Jawa Timur. *Thesis Magister Pengelolaan Lingkungan UGM*.
- Febria, F.A., Zakaria, I.J., Syukriani, L., Rahayu, S.R., and Fajri, M.A. (2016). The Highest Mercury Resistant Bacteria as a Mercury Remediator from Gold Mining Soil in West Sumatera, Indonesia. *Journal of Chemical and Pharmaceutical Res*, 8(1):394-397 ISSN: 0975-7384 CODEN (USA): JCPRC5 394
- Fiedler, S., Vepraskas, M. J., & Richardson, J. L. (2007). Soil Redox Potential: Importance, Field Measurements, and Observations. *Advances in Agronomy*, 94(6), 1–54. [https://doi.org/10.1016/S0065-2113\(06\)94001-2](https://doi.org/10.1016/S0065-2113(06)94001-2)
- Gadd, G.M., and White, C. (1993). Microbial Treatment of Metal Pollutant-A Working Biotechnology?. *Trend In Biotechnology*, Vol. II, Issue 8, August 1993, 353-359.
- Gadd, G. M. (2004). Microbial Influence On Metal Mobility and Application for Bioremediation. *Geoderma*, 122, 109 – 119.
- Gaonkar, T., and Bhosle, S. (2013). Effect of Metals On A Siderophore Producing Bacterial Isolate and Its Implications On Microbial Assisted Bioremediation of Metal Contaminated Soils. *Chemosphere*, 93(9), 1835–1843.
- García-Sánchez M & Száková J. 2016. Chapter 12 - Biological Remediation of Mercury-Polluted Environments. Plant Metal Interaction. Emerging Remediation Techniques 2016, Pages 311-334
- Gautama, R. S. (2007). Pidato Guru Besar ITB: Pengelolaan Air Asam Tambang: Aspek Penting Menuju Pertambangan Berwawasan Lingkungan.
- Ge, S., Ge, S., Zhou, M., and Dong, X. (2015). Bioremediation of Hexavalent Chromate Using Permeabilized *Brevibacterium* sp. and *Stenotrophomonas* sp. Cells. *Journal of Environmental Management*, 157, 54–59.
- Georgiev, P., Groudev, S., Spasova, I., & Nicolova, M. (2014). Ecotoxicological Characteristic of A Soil Polluted by Radioactive Elements and Heavy Metals Before and After Its Bioremediation. *Journal of Geochemical Exploration*, 142, 122–129. <https://doi.org/10.1016/j.gexplo.2014.02.024>
- Gerhardt, K. E., Huang, X., Glick, B. R., & Greenberg, B. M. (2009). Plant Science Phytoremediation and Rhizoremediation of Organic Soil Contaminants : Potential



and Challenges. *Plant Science*, 176, 20–30.
<https://doi.org/10.1016/j.plantsci.2008.09.014>

Ghorbani, N.R., Salehrastin, N., Moeni, A. (2002). Heavy Metals Effect The Microbial Populations and Their Activities. *Presentation: Poster, Paper No. 2234, Symposium No. 54, 17th WCSS, 14-21 August 2002*, Thailand.

Goldstein, R. A., Olson, B. H., and Porcella, D. B. (2015). Conceptual Model of Genetic Regulation of Mercury Biogeochemical Cycling. *Environmental Technology*, 2060 (December).

Gomez, F., and Sartaj, M. (2013). Field Scale Ex-Situ Bioremediation of Petroleum Contaminated Soil Under Cold Climate Conditions. *International Biodeterioration and Biodegradation*, 85, 375–382.

Green-ruiz, C. (2006). Mercury (II) Removal from Aqueous Solutions by Nonviable *Bacillus sp.* from a Tropical Estuary. *Bioresource Technology*, 97, 1907–1911.

Groudev, S., Georgiev, P., Spasova, I., & Nicolova, M. (2014). Decreasing The Contamination and Toxicity of a Heavily Contaminated Soil by In Situ Bioremediation. *Journal of Geochemical Exploration*, 144, 374–379.
<https://doi.org/10.1016/j.gexplo.2014.01.017>

Groudev, S., Spasova, I., Nicolova, M., and Georgiev, P. (2010). In Situ Bioremediation of Contaminated Soils in Uranium Deposits. *Hydrometallurgy*, 104(3-4), 518–523.

Gupta, N., & Ali, A. (2004). Mercury Volatilization by R Factor Systems in Escherichia Coli Isolated from Aquatic Environments of India. *Current Microbiology*, 48, 88–96. <https://doi.org/10.1007/s00284-003-4054-0>

Gupta, R., & Saxena, R. K. (2002). Microbial Variables for Bioremediation Metals from Industrial Effluents of Heavy Metal from Industrial Effluent. *Biotransformations: Bioremediation Technology for Health and Environmental Protection*.

Hall, J. L. (2002). Cellular Mechanisms for Heavy Metal Detoxification and Tolerance. *Journal of Experimental Botany*, 53(366), 1–11.

Hamdi, H., Benzarti, S., Manusadzianas, L., Aoyama, I., and Jedidi, N. (2007). Solid-Phase Bioassays and Soil Microbial Activities to Evaluate PAH-Spiked Soil Ecotoxicity After a Long-Term Bioremediation Process Simulating Landfarming. *Chemosphere*, 70, 135–143.

Hardiani, H., Kardiansyah, T., Sugesti., S. (2011). Bioremediasi Logam Timbal (Pb) dalam Tanah Terkontaminasi Limbah Sludge Industri Kertas Proses Deinking. *Jurnal Selulosa*, Vol 1(1), 31–41.

Hardjowigeno, S. (1993). Klasifikasi Tanah dan Pedogenesis. CV. Anademika Pressindo.

Hards BC, & Higgin JP. (2004). Bioremediation of Acid Rock Drainage Using SRB. *Jacques White Environment Limited*.



Havlin, J.L., Beaton, J.B., Tisdale, S.L. & Nelson, W. L. (1999). Soil Fertility and Fertilizers. An Introduction to Nutrient Management. *Prentice Hall. New Jersey.*

Herman, D. Z. (2006). Kelompok Kerja Konservasi-Pusat Sumber Daya Geologi.

Huang, D., Zeng, G., Jiang, X., & Feng, C. (2006). Bioremediation of Pb-Contaminated Soil by Incubating with *Phanerochaete Chrysosporium* and Straw. *Journal of Hazardous Material*, 134, 268–276. <https://doi.org/10.1016/j.jhazmat.2005.11.021>

Irawadi, dan Sutomo., A.S. (2008). Faktor Resiko Keracunan Merkuri Pada Masyarakat Di Sekitar Tambang Emas Tradisional Di Desa Kalireja Kulon Progo. *Thesis S-2 Ilmu Kesehatan Masyarakat UGM.*

Iskandar, J. (2004). Teori dan Isu Pembangunan. *Bandung: Puspaga.*

Jan, A.T., Ali, A., Mohd, Q., and Haq, R.. (2009). Mercury Pollution: An Emerging Problem and Potential Bacterial Remediation Strategies. *World J Microbiol Biotechnol*, 1529–1537.

Jaysankar, D., and Ramaiah, N. (2008). Detoxification of Toxic Heavy Metals by Marine Bacteria Highly Resistant to Mercury. *Marine Biotechnology*, 10(4), 471–477.

Jeyasingh, J., and Philip, L. (2005). Bioremediation of Chromium Contaminated Soil : Optimization of Operating Parameters under Laboratory Conditions. *Journal of Hazardous Materials*, 118, 113–120

Karamalidis, A. K., Evangelou, A. C., Karabika, E., Koukkou, A. I., Drainas, C., and Voudrias, E. A. 2010. Laboratory Scale Bioremediation of Petroleum-Contaminated Soil by Indigenous Microorganisms and Added *Pseudomonas aeruginosa* Strain Spet. *Bioresource Technology*, 101(16), 6545–6552.

Kathiravan, M. N., Karthick, R., and Muthukumar, K. (2011). Ex-situ Bioremediation of Cr (VI) Contaminated Soil by *Bacillus sp.*: Batch and Continuous Studies. *Chemical Engineering Journal*, 169(1-3), 107–115.

Keramati, P., Hoodaji, and M., Tahmourespour, A. (2011). Multi-metal Resistence Study of Bacteria Highly Resistant to Mercury Isolated from Dental Clinic Effluent. *African Journal of Microbiology Research*. Vol. 5 (7), pp. 831-837.

Khairuddin, H. (1992) Pembangunan Masyarakat: Tinjauan Aspek Sosiologi, Ekonomi dan Perencanaan. *Liberty, Yogyakarta.*

Kumar, B.L., and Sai Gopal, D.V.R. (2015). Effective Role of *Indigenous* Microorganism for Sustainable Environment. *Biotech*. Vol. 5:867–876.

Leng, M. (2004). Bioremediation: Techniques for Cleaning Up A Mess. *BioTeach Journal*, Vol 2, 18-22. www.bioteach.ubc.ca



Leung, W.C., Chua, H., Lo, W. (2001). Biosorption of Heavy Metals by Bacteria Isolated From Activated Sludge. *Applied Biochemistry and Biotechnology*. Vol. 91-93.

Lemire, J., Mailoux, R., Auger, C., Whalen, D., and Appanna, V. D. (2010). Mini review: *Pseudomonas fluorescens* Orchestrates A Fine Metabolic-balancing Act to Counter Aluminium Toxicity. *Environmental Microbiology*, 12, 1384–1390.

Li, N. Y., Fu, Q. L., Zhuang, P., Guo, B., Zou, B., Li, Z. A., Li, Z. A. (2012). Effect of Fertilizers on Cd Uptake of Amaranthus hypochondriacus, A High Biomass, Fast Growing and Easily Cultivated Potential Cd Hyperaccumulator. *International Journal of Phytoremediation*, 6514 (Desember 2015).

Liebert, C.A., Hall, R.M. and Summers, A.O. (1999). Transposon Tn21, Flagship of The Floating Genome. *Microbiol.Mol. Biol. Rev.*, 63: 507-522.

Lima, D., Viana, P., André, S., Chelinho, S., Costa, C., Ribeiro, R., and Sousa, J. P. (2009). Evaluating a Bioremediation Tool for Atrazine Contaminated Soils in Open Soil Microcosms: The Effectiveness of Bioaugmentation and Biostimulation Approaches. *Chemosphere*, 74(2), 187–192.

Lin, T., Pan, P., and Cheng, S. (2010). Ex Situ Bioremediation of Oil-Contaminated Soil. *Journal of Hazardous Materials*, 176, 27–34.

Lladó, S., Solanas, A. M., Lapuente, J. De, Borràs, M., and Viñas, M. (2012). A Diversified Approach to Evaluate Biostimulation and Bioaugmentation Strategies for Heavy-Oil-Contaminated Soil. *Science of the Total Environment*, 435-436, 262–269.

Lors, C., Damidot, D., Lors, C., & Damidot, D. (2012). Comparison of A Bioremediation Process of PAHs In A PAH-Contaminated Soil At Field and Laboratory Scales. *Environmental Pollution*, 165(June), 11–17.

Lutfi SR, Wignyanto, Kurniati, E. (2018). Bioremediasi Merkuri Menggunakan Bakteri Indigenous dari Limbah Penambangan Emas di Tumpang Pitu, Banyuwangi. *Jurnal Teknologi Pertanian*, Vol. 19 No. 1, April 2018, 15-24.

Madigan, M.T., Martinko, J.M., Stahl, D.A. and Clark, D.P. (2010). *Brock Biology of Microorganisms*. Benjamin Cummings, 13 Edition.

Mahbub, K.R., Krishnan, K., Megharaj, M. (2016). Bioremediation Potential of A Highly Mercury Resistant Bacterial Strain *Sphingobium* SA2 Isolated from Contaminated Soil. *Chemosphere*, Vol. 144, 330-337.

Mahbub, K.R., Bahar, M.M., Labbate, M., Krishnan, K., Andrews, S., Naidu, R., Megharaj, M. (2017). Bioremediation of Mercury: Not Properly Exploited in Contaminated Soils. *Appl Microbiol Biotechnol.* 101 (3), 963-976.

Mahmud, M., dan Sudarmadji. (2012). Model Sebaran Spasial Temporal Konsentrasi Merkuri Akibat Penambangan Emas Tradisional Sebagai Dasar Monitoring Dan



Evaluasi Pencemaran Di Ekosistem Sungai Tulabolo Provinsi Gorontalo. *Disertasi S-3 Ilmu Geografi UGM.*

- Mandal, A. (1995). Mercury Detoxifying Enzymes Within Endospores of a Broad - Spectrum Mercury Resistant *Bacillus pasteurii*. *J. Biosci.*, 20(1), 83–88.
- Marschner, H. (1995). Mineral Nutrition of Higher Plants. *2nd Ed. Academic Press. London.*
- Maskun, S. (1994). Pembangunan Masyarakat Desa, Azas, Kebijaksanaan dan Manajemen M.W., Yogyakarta.
- Metcalf & Eddy, (2000), Waste Water Treatment Engineering, Treatment Disposal Reuse. McGraw-Hill International. 3rd edition.
- Mirdat, Patadungan, YS., I. (2013). The Level of Heavy Metal of Mercury (Hg) in Soil of Agricultural Area Around Gold Mining in Poboya, Palu. *E-J. Agrotekbis.*, Vol. 1 (2): 127-134, 1(2), 127–134.
- Miretzky, P., and Cirelli, A. F. (2009). Hg (II) Removal from Water by Chitosan and Chitosan Derivatives: A Review. *Journal of Hazardous Materials.*, 167, 10–23.
- Mizwar, A., dan Trihadiningrum, Y. (2015). Potensi Bioremediasi Tanah Terkontaminasi Polycyclic Aromatic Hydrocarbons dari Batubara dengan Composting. *Research Gate.*, (October), 0-14.
- Mori, Y., Suetsugu, A., Matsumoto, Y., Fujihara, A., & Suyama, K. (2013). Enhancing Bioremediation of Oil-Contaminated Soils by Controlling Nutrient Dispersion Using Dual Characteristics of Soil Pore Structure. *Ecological Engineering*, 51, 237–243. <https://doi.org/10.1016/j.ecoleng.2012.12.009>.
- Mrozik, A., and Prowska-Seget, Z. (2010). Bioaugmentation as a Strategy for Cleaning Up of Soils Contaminated with Aromatic Compounds. *Microbiological Research*, Vol 165, Issue 5, 363-375.
- Mukian, L. M., Grant, R. J., Clipson, N. J. W., and Doyle, E. M. (2009). Bacterial Community Dynamics during Bioremediation of Phenanthrene and Fluoranthene-Amended Soil. *International Biodeterioration and Biodegradation.*, 63(1), 52–56.
- Mulyadi, M. (2009). Partisipasi Masyarakat dalam Pembangunan Masyarakat Desa. *Nadi Pustaka*, Jakarta.
- Munir, E. (2006). Pemanfaatan Mikroba dalam Bioremediasi: Suatu Teknologi Alternatif untuk Pelestarian Lingkungan. *Pidato Pengukuhan Jabatan Guru Besar Tetap Dalam Bidang Mikrobiologi Pada Fakultas MIPA Universitas Sumatera Utara.*
- Ndraha, T. (1982). Metodologi Penelitian Pembangunan Desa. *Bumi Aksara*, Jakarta.
- Nies, D. H. (1999). Microbial Heavy-Metal Resistance. *Applied Microbiol Biotechnol*, 730–750.



Nofiani, R., and Gusrizal. (2004). Bakteri Resisten Merkuri Spektrum Sempit dari Daerah Bekas Penambangan Emas Tanpa Izin (PETI) Mandor, Kalimantan Barat. *Jurnal Natur Indonesia.*, 6(2), 67–74.

Noor, Y.R. dan Heyde, J. (2007). Pengelolaan Lahan Gambut Berbasis Masyarakat di Indonesia. *Proyek Climate Change, Forests and Peatlands in Indonesia, Wetlands International-Indonesia, Programme and Wildlife Habitat Canada*. Bogor.

Notodarmojo, S. (2005). Pencemaran Tanah dan Air Tanah. Bandung: *Penerbit ITB*. ISBN 979-3507-43-8.

Nugroho, A. (2006). Biodegradasi Sludge Minyak Bumi dalam Skala Mikrokosmos: Simulasi Sederhana sebagai Kajian Awal Bioremediasi Land Treatment. *Makara, Teknologi*, Vol. 10, No. 2, 82-89.

Pahan, K., Ghosh, D.K., Chaudhuri, J., Gachhui, R., Rai, S., Mandal, A. (1995). Mercury Detoxifying Enzymes within Endospores of A Broad - Spectrum Mercury Resistant Bacillus Pasteurii. *J. Biosci*, 20(1), 83–88.

Pain, A., and Cooney, J. J. (1998). Characterization of Organotin-Resistant Bacteria from Boston Harbor Sediments. *Environmental Contamination and Toxicology*, 416, 412–416.

Park, Y., Ko, J., Yun, S., Young, E., Kim, S., Kang, S., Kim, S. (2008). Enhancement of Bioremediation By Ralstonia sp. HM-1 In Sediment Polluted By Cd and Zn. *Bioresource Technology*, 99, 7458–7463.

Pelaez, A. I., Lores, I., Sotres, A., Mendez-garcia, C., Fernandez-velarde, C., Santos, J. A., Sanchez, J. (2013). Design and Field-Scale Implementation of An On Site Bioremediation Treatment In PAH-Polluted Soil. *Environmental Pollution*, 181, 190–199.

Pemerintan Desa Mandor. (2019). Monografi Desa Mandor.

Pepi, M., Gaggi, C., Bernardini, E., Focardi, S., Lobianco, A., Ruta, M., and Focardi, S. E. (2011). Mercury-resistant Bacterial Strains *Pseudomonas* and *Psychrobacter spp.* Isolated from Sediments of Orbetello Lagoon (Italy) and Their Possible Use in Bioremediation Processes. *International Biodeterioration and Biodegradation*, 65(1), 85–91.

Perelo, L. W. (2010). Review: In Situ and Bioremediation of Organic Pollutants in Aquatic Sediments. *Journal of Hazardous Materials*, 177(1–3), 81–89. <https://doi.org/10.1016/j.jhazmat.2009.12.090>

Pimmata, P., Reungsang, A., and Plangklang, P. (2013). Comparative Bioremediation of Carbofuran Contaminated Soil by Natural Attenuation, Bioaugmentation and Biostimulation. *International Biodeterioration and Biodegradation*, 85, 196–204.

Polti, M. A., Atjián, M. C., Amoroso, M. J., and Abate, C. M. (2011). International Biodeterioration and Biodegradation Soil Chromium Bioremediation: Synergic Activity of Actinobacteria and Plants. *International Biodeterioration and*



Biodegradation, 65(8), 1175–1181.

- Poulain, A.J., Sad, M., Ni' Chadhain, Ariya, P.A., Amyot, M., Garcia, E., Campbell, P.G., Zylstra, G.J., and Barkay, T. (2007). *Applied And Environmental Microbiology; Potential for Mercury Reduction by Microbes in the High Arctic*, p. 2230–2238 Vol. 73, doi:10.1128/AEM.02701-06 Copyright © 2007, American Society for Microbiology.
- Pradopo, S. T., Samosir, P., Kayoman, L., Kurniawan, D., & Al, E. (2014). Evaluasi Fungsi Reguler Kawasan Cagar Alam Mandor. *BKSDA Kalimantan Barat*, 1–61.
- Putra, J., dan Prasetya, A. (2008). Pengambilan Uap Merkuri pada Proses Penggarangan Amalgam Dengan Sistem Kondensasi. *Thesis S2 Sistem Teknik UGM*.
- Putri, W.A., dan Purwestri, Y.A. (2014). Isolasi dan Kloning Gen Pengkode Enzim Merkuri Reduktase (merA) Pada Isolat *Streptomyces*. *Thesis S-2 Biologi UGM*.
- Rahmawati, D., dan Hadi, M.P. (2010). Dampak Proses Amalgamasi pada Kegiatan Pertambangan Emas Tanpa Ijin (PETI) Terhadap Kandungan pada Beberapa Muara Sungai di Kecamatan Sekotong Kabupaten Lombok Barat. *Tesis S-2 Ilmu Lingkungan UGM*.
- Rahmayani, A. (2014). Permukiman Tionghoa di Singkawang, dari Masa Kongsi hingga Masa Kolonial. *Penerbit Ombak*.
- Rahyuni, D., dan Marsono, D. (2015). Fitoremediasi Tanah Tercemar Merkuri di Kokap Kabupaten Kulonprogo Daerah Istomewa Yogyakarta. *Disertasi S-3 Ilmu Lingkungan UGM*.
- Rayhan, K., Krishnan, K., and Megharaj, M. (2016). Bioremediation Potential of a Highly Mercury Resistant Bacterial Strain *Sphingobium* SA2 Isolated from Contaminated Soil. *Chemosphere*, 144, 330–337.
- Retnowati, Y., dan Soetarto, E.S. (2005). Bioakumulasi Merkuri oleh Bakteri Sedimen dari Sungai Sangon, D.I. Yogyakarta. *Thesis S2 Ilmu Lingkungan UGM*.
- Rodrigues, E. M., Kalks, K. H. M., and Marcos, R. T. (2015). Prospect, Isolation, and Characterization of Microorganisms for Potential Use in Cases of Oil Bioremediation Along The Coast of Trindade. *Journal of Environmental Management*, 156.
- Santi, P. L. dan Goenadi, H. D. (2009). Potensi *Pseudomonas fluorescens* Strain KTSS untuk Bioremediasi Mercury di Dalam Tanah. *Menara Perkebunan*, 77 (2), 110–124.
- Santini, T. C., Kerr, J. L., & Warren, L. A. (2015). Microbially-driven Strategies for Bioremediation of Bauxite Residue. *Journal of Hazardous Materials*, 293, 131–157. <https://doi.org/10.1016/j.jhazmat.2015.03.024>



- Sarma, S. K., Goloubinoff, P., and Christen, P. (2008). Heavy Metal Ions Are Potent Inhibitors of Protein Folding. *Biochemical and Biophysical Research Communications*, 372, 341–345.
- Sayara, T., Borràs, E., Caminal, G., and Sánchez, A. (2011). Bioremediation of PAHs-Contaminated Soil Through Composting: Influence of Bioaugmentation and Biostimulation on Contaminant Biodegradation. *International Biodeterioration and Biodegradation*, 65(6), 859–865.
- Schmalenberger, A., Sullivan, O. O., Gahan, J., Cotter, P. D., & Courtney, R. (2013). Bacterial Communities Established in Bauxite Residues with Different Restoration Histories. *Environmental Science & Technology*.
- Sekaran, U. (1992). Research Methods for Business: A Skill Building Approach. *Second Edition*, New York: John Wiley and Sons, Inc.
- Setyono P, and Soetarto E.S. (2008). Biomonitoring of Ecosystem Degradation Caused by CPO Waste of Mentaya River in Central Kalimantan Use of Esterase Isozym Electromorf Method. *Biodiversitas*, 9(3), 232-236.
- Setiyo, Y., Bagus, I., Gunam, W., Bagus, I., Gunadnya, P., dan Tika, I. W. (2011). Bioremediasi In Situ Lahan Tercemar Pestisida oleh Mikroba yang Ada pada Kompos. *The Excellence Research Universitas Udayana*. 108–112.
- Siahaan, T.M., dan Sudarmadji. (2003). Bioremediasi Tanah Terkontaminasi Minyak Bumi dengan Menggunakan Kultur Bakteri Petrofilik Lokal dan *Sporotrichum pulverulentum*: Studi Kasus VICO Indonesia Kalimantan Timur. *Thesis Magister Pengelolaan Lingkungan UGM*.
- Silver, S. (2003). Bacterial Silver Resistance: Molecular Biology and Uses and Misuses of Silver Compounds, 27.
- Simarro, R., González, N., Bautista, L. F., and Molina, M. C. (2013). Assessment of The Efficiency of In Situ Bioremediation Techniques in A Creosote Polluted Soil: Change In Bacterial Community. *Journal of Hazardous Materials*, 262, 158–167.
- Singh, R., Bishnoi, N. R., and Kirrolia, A. (2013). Evaluation of *Pseudomonas Aeruginosa* An Innovative Bioremediation Tool in Multi Metals Ions From Simulated System Using Multi Response Methodology. *Bioresource Technology*, 138, 222–234.
- Sinha, A., Kishore, K., and Kumar, S. (2012). International Biodeterioration and Biodegradation Studies on Mercury Bioremediation by Alginate Immobilized Mercury Tolerant *Bacillus cereus* Cells. *International Biodeterioration and Biodegradation*, 71, 1–8.
- Slamet, M. (1985). Peningkatan Partisipasi Masyarakat dalam Pembangunan Pedesaan. *Interaksi*, Tahun I Nomor 1, 3-7.
- Smith, S.R. (1991). Effects of Sewage Sludge Application on Soil Microbial Processes and Soil Fertility. *Adv Soil Sci.*, Vol. 16: 191-212.



Sofia, dan Husodo, A.H. (2015). Dinamika Kontaminasi Merkuri Berbasis Kesehatan Lingkungan dan Spasial pada Kegiatan Penambangan Emas Skala Kecil di Krueng Sabee Provinsi Aceh. *Disertasi S-3 Ilmu Kedokteran UGM*.

Sofyan, R., Kusumo, N., Anny, M., & Erna, S. (2011). Petunjuk Teknis Evaluasi Lahan untuk Komoditas Pertanian. Bogor: Balai Besar Penelitian dan Pengembangan Sumberdaya Lahan Pertanian. *Badan Penelitian dan Pengembangan Pertanian Kementerian Pertanian*.

Song, X., and A, B. V. H. (2005). Volatilization of Mercury from Soils in Response to Simulated Precipitation. *Atmospheric Environment*, 39, 7494–7505.

Sprocati, A. R., Alisi, C., Tasso, F., Marconi, P., Sciullo, A., Pinto, V., Cremisini, C. (2012). Effectiveness of A Microbial Formula, As A Bioaugmentation Agent, Tailored for Bioremediation of Diesel Oil and Heavy Metal Co-Contaminated Soil. *Process Biochemistry*, 47(11), 1651–1657.

Sriram, M. I., Gayathiri, S., Gnanaselvi, U., Jenifer, P. S., Raj, S. M., and Gurunathan, S. (2011) Novel Lipopeptide Biosurfactant Produced by Hydrocarbon Degrading and Heavy Metal Tolerant Bacterium *Escherichia fergusonii* KLU01 As A Potential Tool for Bioremediation. *Bioresource Technology*, 102(19), 9291–9295.

Sugiyono. (2008). Metode Penelitian Kunatitatif Kualitatif dan R & D. Bandung: Penerbit Alfabeta.

Suheryanto, dan Soetarto, E.S. (2010). Demetilasi Metilmerkuri oleh Bakteri Yang Diisolasi dari Sedimen Sungai Sangon. *Disertasi S-3 Ilmu Lingkungan UGM*.

Suja, F., Rahim, F., Raihan, M., Hambali, N., Razali, M. R., Khalid, A., & Hamzah, A. (2014) Effects of Local Microbial Bioaugmentation and Biostimulation on The Bioremediation of Total Petroleum Hydrocarbons (TPH) In Crude Oil Contaminated Soil Based on Laboratory and Field Observations. *International Biodeterioration and Biodegradation*, 90, 115–122.

Suryandari, K.C., dan Soetarto, E.S. (2005). Pertumbuhan Bakteri Filamentous dan Pembentukan Biofilm pada Medium Cair yang Mengandung Merkuri Anorganik ($HgCl_2$). *Thesis S2 Biologi UGM*.

Susiyanti, F., Santosa, L.W., dan Mata'Ali, L. (2018). Kajian Pencemaran Lingkungan Perairan Kali Penaruban Akibat Kegiatan Pertambangan Emas Tradisional di Desa Paningkaban, Gumelar, Banyumas, Jawa Tengah. *Thesis Magister Ilmu Lingkungan UGM*.

Sutarmingsih, C.L., and Martono, E. (2010). Status dan Sebaran Logam Berat pada Habitat Melon (*Cucumis melo L*) di Desa Argomulyo, Kecamatan Cangkringan Kabupaten Sleman. *Thesis S-2 Ilmu Lingkungan UGM*.

Sutrisno, L. (1995). Menuju Masyarakat Patisipatif. Yogyakarta: Penerbit Kanisius.

Theresia, A., Andini, K. S., Nugraha, P.G.P., Mardikanto, T. (2015). Pembangunan Berbasis Masyarakat. Penerbit Alfabeta, Bandung.



- Umar, Husein. (2005). Metodologi Penelitian. Jakarta: *Penerbit Raja Garfindo*.
- Umrania, V. V. (2006). Bioremediation of Toxic Heavy Metals Using Acidothermophilic Autotrophes. *Bioresource Technology*, 97, 1237–1242.
- Vaxevanidou, K., Papassiopi, N., and Paspaliaris, I. (2008). Removal of Heavy Metals And Arsenic from Contaminated Soils Using Bioremediation and Chelant Extraction Techniques. *Chemosphere*, 70, 1329–1337.
- Vidali, M. (2001). Bioremediation: An Overview. *Pure Appl. Chem*, 73(7), 1163–1172.
- Vinod, V. T. P., Sashidhar, R. B., Sivaprasad, N., Sarma, V. U. M., Satyanarayana, N., Kumaresan, R., Raviprasad, P. (2011). Bioremediation of Mercury (II) from Aqueous Solution by Gum Karaya (*Sterculia urens*): A Natural Hydrocolloid. *Desalination*, 272(1–3), 270–277. <https://doi.org/10.1016/j.desal.2011.01.027>
- Wagner-Döbler, I. (2003). Pilot Plant for Bioremediation of Mercury-containing Industrial Wastewater. *Applied Microbiology and Biotechnology*, 62(2–3), 124–133. <https://doi.org/10.1007/s00253-003-1322-7>
- Wallace, A., Wallace, G. A. (1992). Faktors Influencing Oxidation of Iron Pyrite in Soil. *Journal of Plant Nutrition*, 15(Issue 10: Iron)
- Wang, Q., Xie, S., and Hu, R. (2013). Bioaugmentation With *Arthrobacter sp.* Strain DAT1 for Remediation of Heavily Atrazine-contaminated Soil. *International Biodeterioration and Biodegradation*, 77, 63–67.
- Wardna, K. (2003). Dampak Lingkungan Akibat Penambangan Emas Tanpa Ijin (PETI) (Studi Kasus tentang Efektivitas Lembaga Lingkungan dalam Pengendalian Dampak Lingkungan Akibat Aktivitas PETI di Kalimantan Barat). *Thesis Program Pasca Sarjana, Program Studi Ilmu Lingkungan Universitas Indonesia*.
- Winardi, Haryono, E., Sudrajat, & Soetarto, E. S. (2019). Potential of Soil Bacteria as Mercury Bioremediation Agent in Traditional Gold Mining. *Biosaintifika: Journal of Biology & Biology Education*, 11(1), 108-116.
- Wingfield, J. C., Kelley, J. P., and Angelier, F. (2011). What Are Extreme Environmental Conditions and How Do Organisms Cope with Them?. *Current Zoology*, 57(3), 363–374.
- Witters, N., Mendelsohn, R., Van Passel, S., Van Slycken, S., Weyens, N., Schreurs, E., Vangronsveld, J. (2012). Phytoremediation, A Sustainable Remediation Technology? II: Economic Assessment of CO₂ Abatement Through The Use of Phytoremediation Crops for Renewable Energy Production. *Biomass and Bioenergy*, 39, 470–477. <https://doi.org/10.1016/j.biombioe.2011.11.017>
- Wolicka, D., Suszek, A., Borkowski, A., & Bielecka, A. (2009). Bioresource Technology Application of Aerobic Microorganisms in Bioremediation In Situ of Soil Contaminated by Petroleum Products. *Bioresource Technology*, 100(13), 3221–3227. <https://doi.org/10.1016/j.biortech.2009.02.020>



Wondiwai, E. dan Soetarto, E.S. (2012). Bakteri Pengguna Metil Merkuri pada Sedimen Dan Air Sungai Tercemar Tailing Hasil Penambangan Emas di Selodong Lombok Barat. *Thesis S-2 Biologi UGM*.

Xu, Y., Sun, G., Jin, J., Liu, Y., and Luo, M. (2014). Successful Bioremediation of An Aged and Heavily Contaminated Soil Using A Microbial/ Plant Combination Strategy. *Journal of Hazardous Materials.*, 264, 430–438.

Yadav, R., P. (2001). People's Participation. *UNAPDI* p. 85-102.

Zahooor, A., and Rehman, A. (2009). Isolation of Cr (VI) Reducing Bacteria from Industrial Effluents and Their Potential Use in Bioremediation of Chromium Containing Wastewater. *Journal of Environmental Sciences*, 21(6), 814–820.

Zhang, Z., Rengel, Z., Chang, H., Meney, K., Pantelic, L., & Tomanovic, R. (2012). Geoderma Phytoremediation Potential of *Juncus Subsecundus* in Soils Contaminated with Cadmium and Polynuclear Aromatic Hydrocarbons (PAHs). *Geoderma*, 175–176, 1–8. <https://doi.org/10.1016/j.geoderma.2012.01.020>