

## DAFTAR PUSTAKA

- Agus, F., and G. M. Subiksa. 2008. Lahan Gambut: Potensi untuk Pertanian dan Aspek Lingkungan. Booklet. Balai Penelitian Tanah and World Agroforestry Centre (ICRAF) SE Asia Regional Office. Bogor. Indonesia.
- Ahmed, E. M. and Usman, A. R. A. 2014. Effects of mobilizing agents and organic manure on the phytoextraction of pb by maize in clay and calcareous sandy soils. *Assiut J. Agric. Sci.* 45(3) : 89-104.
- Al-Jabri, M. 2008. Kajian penetapan kapasitas tukar kation zeolit sebagai pembenah tanah untuk lahan pertanian terdegradasi. *Jurnal Standardisasi.* 10: 56-59.
- Alloway, B. J. 1995. *Heavy Metal in Soils.* Blackie Academic and Professional – Chapman and Hall. New York.
- Appel, C., and Lena Ma. 2002. Concentration, pH, and surface charge effects on cadmium and lead sorption in three tropical soils. *J. Environ Qual.* 31: 581-589.
- Aragno, M., and J. Michel. 2005. *The Living Soil.* Science Publishers Inc. New Jersey.
- Balai Penelitian Tanah. 2011. *Petunjuk Teknis Edisi 2. Analisis Kimia Tanah, Tanaman, Air, dan Pupuk.* Bogor.
- Bugis, H., Anwar D., dan Agus B. 2012. Studi kandungan logam berat kromium VI (CR VI) pada air dan sedimen di sungai pankajene kabupaten pangkep. *Jurnal Penelitian. Alumni Bagian Kesehatan Lingkungan FKM UNHAS Makassar.*
- Darmawijaya, I. 1990. *Klasifikasi Tanah, Dasar-dasar Teori Bagi Penelitian Tanah dan Pelaksanaan Penelitian.* UGM Press, Yogyakarta.
- El-Aziz, Z. H. A., Hassan H. A., Mohamed N. A. H., Abu E. H. H. A., and Haythum H. S. 2017. Implications of zeolite and calcium carbonate fraction size on chemical remediation of soils contaminated with lead. *Egypt. J. Of Appl. Sci.* 32(4): 16-26.
- Erfandi, D., dan Ishak J. 2013. *Teknologi Pengendalian Pencemaran Logam Berat pada Lahan Pertanian.* Di dalam buku berjudul “Konservasi Tanah Menghadapi Perubahan Iklim”. Balai Penelitian Tanah.
- Eviati dan Sulaeman. 2009. *Petunjuk Teknis 2: Analisis Kimia Tanah, Tanaman, Air, dan Pupuk.* Bogor, Balai Penelitian Tanah.
- Fageria, N. K., Baligar V. C., and Wright R. J. 1988. Aluminium toxicity in crops plants. *J. Plant Nutr.* 11: 303-319.
- Foth, D. 2010. *Fundamentals of Soil Science.* John Wiley and Sons. New York.
- Foth, H. D. 1998. *Fundamental of Soil Science.* John Wiley and Sons Inc. New York.
- Hakim, N., M. Y. Nyakpa., A. M. Lubis., Sutopo G. N., M. A. Diha., G. B. Hong., and H. H. Bailey. 1986. *Dasar-Dasar Ilmu Tanah.* Universitas Lampung. Lampung.
- Hardjowigeno, S. 2002. *Ilmu Tanah.* Akademika Pressindo. Jakarta.
- Hardjowigeno, S. 1993. *Klasifikasi Tanah dan Pedogenesis. Edisi Pertama* Akademika Pressindo. Jakarta.

- Henry, J. R. 2000. An overview of the phytoremediation of lead and mercury. National Network of Environmental Management Studies (NNEMS). Washington, D. C.
- Hidayat, B. 2015. Remediasi tanah tercemar logam berat dengan menggunakan biochar. *Jurnal Pertanian Tropik ISSN Online*. 2(1): 31-41.
- Houben, D., Laurent E., and Philippe S. 2013. Beneficial effects of biochar application to contaminated soils on the bioavailability of Cd, Pb, and Zn and the biomass production of rapessed (*Brassica napus* L.). *Biomass and Bioenergy Sciverse ScienceDirect*. 57: 196-204.
- Iskandar, T., dan Umi R. 2017. Karakteristik biochar berdasarkan jenis biomassa dan parameter proses *pyrolysis*. *Jurnal Teknik Kimia*. 12(1): 28-34.
- Juhaeti, T., Sharif F., and Hidayati N. 2004. Inventarisasi tumbuhan potensial untuk fitoremediasi. *Jurnal Biodiversitas*. 6(1): 31-33.
- Juliana, E., Sarifuddin, dan Jamilah. 2015. Pemberian zeolit dan arang sekam pada lahan sawah tercemar limbah pabrik terhadap Pb tanah dan tanaman padi. *Jurnal Online Agroekoteknologi*. 3(2): 2337-6597.
- Jutsz, A. M., and Anna G. 2015. Mechanisms of stress avoidance and tolerance by plants used in phytoremediation of heavy metals. *Archives of Environmental Protection*. 41(4): 104-114.
- Kushwaha, A., Nidhi H., Sanjay K., and Radha R. 2018. A critical review on speciation, mobilization, and toxicity of lead in soil microbe plant system and bioremediation strategies. *Ecotoxicology and Enviromental Safety*. 147: 1035-1045.
- Lebrum, M., Carmelo M., Florie M., Nour H., Mikael M., Domenico M., and Sylvain B. 2016. Effect of biochar amendements on As and Pb mobility and phytoavailability in contaminated mine technosols phytoremediated by *Salix*. *Journal of Geochemical Exploration*. 182: 149-156.
- Liferdi, L. 2010. Efek pemberian fosfor terhadap pertumbuhan dan status hara pada bibit manggis. *J. Hort*. 20(1).
- Li, H., Xiaoling D., Evandro B. da Silva, Letuzia M. de Oliveira, Yanshan C., and Lena Q. Ma. 2017. Mechanisms of metal sorption by biochars: Biochar characteristics and modifications. *Chemosphere*. 178: 466-478.
- Li, H., Wei-yu S., Hong-bo S., and Ming-an S. 2009. The remediation of the lead polluted garden soil by natural zeolite. *Journal of Hazardous Materials*. 169: 1106-1111.
- Lindsay, W. L. 1979. *Chemical Equilibria in Soils*. Jhon Willey & Soins. New York.
- Lopulisa, C., 2004. *Tanah-Tanah Utama Dunia. Ciri, Genesa dan Klasifikasinya*. Lembaga Penerbitan Universitas Hasanuddin. Makassar.
- Mengel, K., and Kirkby E. A. 2007. *Principles of Plant Nutrien*. Inter. Potash Inst. Worblaufen-Bern. Switzerland.
- M. Kamaraj, Rajeshwari S., Subha P. V., Jansi L., and Manjudevi M. 2012. Uptake of mineral elements by *Brassica juncea* and its effects on biochemical parameters. *Advance in Applied Science Research*. 3(2): 1039-1044.
- Moshoeshoe, M., Misel S. N., and Veronica O. 2017. A review of the chemistry, structure, properties, and applications of zeolites. *American Journal of Materials Science*. 7(5): 196-221.

- Mukhlis. 2011. Tanah Andisol: Genesis, Klasifikasi, Karakteristik, Penyebaran, dan Analisis. USU Press. Medan.
- Mumpton, F. A. 1985. Using Zeolites in Agriculture. Chapter VIII. Departement of The Earth Sciences. State University College. Brockport. New York 14420.
- Munir, M. 1996. Tanah Tanah Utama Indonesia. Dunia Pustaka Jaya. Jakarta
- Muslim, B., Suhatri, dan Awaluddin. 2010. Kemampuan sawi (*Brassica juncea*) sebagai phytoremediator untuk menurunkan kadar timbal (Pb) dalam tanah. Jurusan Kesehatan Lingkungan, Poltekkes. Padang.
- Myrbo, A., Plank, C., Coleman, J., Shane, L. and Graber, D. 2001. Loss on ignition as a method for estimating organic and carbonate content. Journal of Paleolimnology 25 : 101-110.
- Nagajyoti PC, LeeKD, and Sreekanth T.V.M. 2010. Heavymetals, occurrence and toxicity for plants: a review. Environ Chem Lett. 8(3):199–216.
- Nasution, A. H., Fauzi, Lahuddin M. 2014. Kajian p tersedia pada tanah sulfat masam potensial. Jurnal Online Agroekoteknologi. 2(3): 1244-1251.
- Nazir, M., Syukur, and Muyassir. 2017. Pemetaan kemasaman tanah dan analisis kebutuhan kapur di kecamatan keumala kabupaten pidie. Jurnal Ilmiah Mahasiswa Pertanian Unsyiah. 2(1): 21-30.
- Nur, F. 2013. Fitoremediasi logam berat kadmium (Cd). Biogenesis Jurnal Ilmiah Biologi. 1(1): 74-83.
- Nur, S., and Thohari. 2005. Tanggap Dosis Nitrogen dan Pemberian Berbagai Macam Bentuk Bolus terhadap Pertumbuhan dan Hasil Tanaman Bawang Merah (*Allium Ascalonicum* L.). Dinas Pertanian Kabupaten Brebes.
- Oktafani, M. B. 2017. Hasil garut (*Marantha arundinacea*) pada naungan dan kekeringan. Seurakarta, Fakultas Pertanian Universitas Sebelas Maret. Skripsi.
- Olaniran, A. O., Adhika B., and Balakrishna P. 2013. Bioavailability of heavy metals in soil: Impact on microbial biodegradation of organic compounds and possible improvement strategies. International Journal of Molecular Sciences. 14: 10197-10228.
- Parsa, K. 2001. Penentuan Kadar Pb dan Penyebaran di Dalam Tanah Pertanian di Sekitar Jalan Raya Desa Kemenuh. Gianyar. Skripsi Kimia. Universitas Udayana. Denpasar.
- Patra, J. M., S. S. Panda, and N. K. Dhal. 2017. Biochar as low cost adsorbent for heavy metal removal: A review. International Journal of Research in Biosciences. 6(1): 1-7.
- Paz-Ferreiro, J., H. Lu, S. Fu, A. Mendez, and G. Gasco. 2014. Use of phytoremediation and biocha to remediate heavy metal polluted soils: a review. Solid Earth. 5: 65-75.
- Peric, J., M. Trgo, N. Vukojevic M. 2004. Removal of zinc, copper, and lead by natural zeolite a comparison of adsorption isotherms. Water Research. 38: 1893-1899.
- Piotrowski, J.K. and D.O. Coleman. 1980. Environmental hazard of heavy metal: Summary Evaluation of lead, Cadmium, and Mercury. WHO Genewa.
- Pourrut, B., Muhammad S., Camille D., Peter W., and Eric P. 2011. Lead uptake, toxicity, and detoxification in plants. Reviews of Environmental Contamination and Toxicology, Springer Verlag. 213: 113-136.

- Pramudyaningih, R., and H. Tikupadang. 2008. Percepatan Pertumbuhan Tanaman Bitti (*Vitex cofasuss Reinw*) dengan Aplikasi Fungsi Mikoriza Arbuskula (FMI). Balai Penelitian Kehutanan Makassar.
- Priyatno, B., and J. Prayitno. 2004. Fitoremediasi sebagai Sebuah Teknologi Pemulihan Pencemaran Khusus Logam Berat. [www.bppt.go.id](http://www.bppt.go.id). Diakses pada 18 September 2018.
- Purwaningsih, D. 2009. Adsorpsi multi logam Ag(I), Pb(II), Cr(III), Cu(II), dan Ni(II) pada Silika dari abu sekam padi. *Jurnal Penelitian Saintek*. 14(1): 59-76.
- Puslittanak. 2003. Usahatani pada Lahan Kering, Badan Penelitian dan Pengembangan Pertanian Departemen Pertanian. Bogor.
- Rajamuddin, U. A., and Idham S. 2014. Karakteristik morfologi dan klasifikasi tanah inceptisol pada beberapa sistem lahan di kabupaten jeneponto sulawesi selatan. *J. Agroland*. 21(2): 81-85.
- Ramesar, N. S., Michael T., Stephen D. E., and Renuka P. S. 2014. Transport and partitioning of lead in Indian Mustard (*Brassica juncea*) and Wheat (*Triticum aestivum*). *Bioremediation Journal*. 18: 345-355.
- Sa'ad, N. S., R. Artanti, T. Dewi. 2009. Fitoremediasi untuk rehabilitasi lahan pertanian tercemar kadmium (Cd) dan tembaga (Cu). *Jurnal Tanah dan Iklim*. 20: 59-66.
- Sanchez, P. A. 2004. *Properties and Management of Soils in the Tropics*. John Wiley & Sons. New York.
- Sarif, P., Abd. Hadid., Imam W. 2015. Pertumbuhan dan hasil tanaman sawi (*Brassica juncea* L.) akibat pemberian berbagai dosis pupuk urea. *E-J. Agrotekbis*. 3(5): 585-591.
- Sharma, H. 2016. Phytoremediation of lead using *Brassica juncea* and *Vetiveria zizanioides*. *International Journal of Lite Sciences Research*. 4(1): 91-96.
- Sharma, P., and Shanker D. 2005. Lead toxicity in plants. *Brazilian Journal of Plant Physiology*. 17(1): 35-52.
- Shi, W., Hong-bo S., Hua L., Ming-an S., and Sheng D. 2009. Progress in the remediation of hazardous heavy metal-polluted soils by natural zeolite. *Journal of Hazardous Materials*. 170: 1-6.
- Smith, J. V. 1988. Topochemistry of zeolites and related material 1. Topology and Geometry, *Chem. Rev*. 88: 149-182.
- Sudirja. 2007. *Pedoman Bertanam Bawang*. Kanisius. Yogyakarta.
- Suminta, S. 2006. Karakterisasi zeolit alam dengan metode difraksi sinar-x. *Jurnal Zeolit Indonesia*. 5(2): 52-68.
- Suryana, I. M., Putu S., dan I Nyoman L. S. 2016. Pengaruh penambahan dosis beberapa jenis biochar pada lahan yang tercemar limbah cair sablon terhadap pertumbuhan tanaman sawi hijau. *Prosiding Seminar Nasional. LPPM UNMAS Denpasar*.
- Stevenson, F. T. 1982. *Humus Chemistry*. John Wiley and Sons. New York.
- Szczyglowska, M., Anna P., Piotr K., and Jacek N. 2011. *International Journal of Molecular Sciences*. 12: 7760-7771.

- Tisdale, S. L., W. L. Nelson., and J. D. Beaton. 1990. Soil fertility and fertilizer. Elements required in plant nutrition 4<sup>th</sup> ed. Max well McMillan Publishing. Singapore. p. 52-92.
- Trakal, L., M. Komarek, J. Szakova, V. Zemanova, and P. Tlutos. 2011. Biochar application to metal contaminated soil: Evaluating of Cd, Cu, Pb, and Zn sorption behavior using single and multi element sorption experiment. *Plant Soil Environ.* 57(8): 372-380.
- Triharto, S. 2013. Survei dan Pemetaan Unsur Hara N, P, K, dan pH Tanah pada Lahan Sawah Tadah Hujan di Desa Durian Kecamatan Pantai Labu. Skripsi. Fakultas Pertanian Universitas Sumatera Utara. Medan.
- Usman. 2012. Teknik penetapan nitrogen total pada contoh tanah secara destilasi titrimetri dan kolorimetri menggunakan *autoanalyzer*. *Buletin Teknik Pertanian.* 17(1): 41-44.
- Wuanal, R. A., and Felix E. O. 2011. Heavy metals in contaminated soils: A Review of Sources, Chemistry, Risks, and Best Available Strategies for Remediation. International Scholarly Research Network. Article ID 402647, 20 pages doi:10.5402/2011/402647.
- Yang, Y., Yan L., Xiaozhen H., Tsan-Yu C., Amit G., Hui C., and Ming T. 2016. The roles of arbuscular mycorrhizal fungi (AMF) in phytoremediation and tree-herb interactions in Pb contaminated soil. *Scientific Reports.* 6: 20469|DOI: 10.1038/srep20469.
- Yong, R. N., A. M. O. Mohammed., and S. P. Warkenting. 1992. Principles of Contaminant Transport in Soil Development in Geoteknikal Engineering. 73 Elsevier. Amsterdam.
- Yusuf, M., Achmad Z., dan Ardy A. 2013. Fitoremediasi tanah tercemar logam berat Pb dan Cd dengan menggunakan tanaman lidah mertua (*Sansevieria trifasciata*). Jurusan Sipil Fakultas Teknik. Universitas Hasanuddin.