

DAFTAR PUSTAKA

1. Yusuf IA. Kajian Kriteria Mutu Air Irigasi. *J Irig.* 2014;9(1):1. doi:10.31028/ji.v9.i1.1-15
2. Cholico-González D, Ortiz Lara N, Fernández Macedo AM, Chavez Salas J. Adsorption Behavior of Pb(II), Cd(II), and Zn(II) onto Agave Bagasse, Characterization, and Mechanism. *ACS Omega.* 2020;5(7).
3. Zein R, Ramadhani P, Aziz H, Suhaili R. Pensi shell (*Corbicula moltkiana*) as a biosorbent for metanil yellow dyes removal: pH and equilibrium model evaluation. *J Litbang Ind.* 2019:15-22.
4. Ali A, Hewehy M, Chen X, Huang G, Wang J. Electrochemical Reduction / Oxidation in the Treatment of Heavy Metal Wastewater. *Metall Eng.* 2013;2(4).
5. Wang Z, Feng Y, Hao X, Huang W, Feng X. A novel potential-responsive ion exchange film system for heavy metal removal. *J Mater Chem A.* 2014;2(26):10263-10272. doi:10.1039/c4ta00782d
6. Wu R. Removal of heavy metal ions from industrial wastewater based on chemical precipitation method. *Ekoloji.* 2019;28(107):2443-2452.
7. Zein R, Bermalita Y, Alfajru T, Zilfa. Modification of Perlite with Pensi Shell (*Corbicula moltkiana*) for water Purification using Batch System. *Int J Enviromental Stud.* 2019.
8. Witek-Krowiak A, Szafran RG, Modelski S. Biosorption of heavy metals from aqueous solutions onto peanut shell as a low-cost biosorbent. *Desalination.* 2011;265(1-3):126-134. doi:10.1016/j.desal.2010.07.042
9. Chaidir Z, Furqani F, Zein R, Munaf E. Utilization of *Annona muricata* L . seeds as potential adsorbents for the removal of rhodamine B from aqueous solution. *J Chem Pharm Res* , 2015 , 7 (4) 879-888. 2015;7(4):879-888.
10. Girsang E, Kiswandono AA, Ikhtiari R, Aziz H, Chaidir Z, Zein R. The purification of waste cooking oil based on lipid profiles measurements by using skin of salacca zalacca. *J Chem Pharm Res.* 2015;7(9):59-65.
11. Zein R, Nofita D, Refilda R, Aziz H. Penyerapan Timbal(II) dan Cadmium(II) di dalam Larutan Menggunakan Limbah Kulit Buah Kapuk. *Chim Nat Acta.* 2019;7(1):37. doi:10.24198/cna.v7.n1.20813
12. Komari N, Sujatmiko. Biomassa Batang Pisang (*Musa paradisiaca* sp.) Sebagai Biosorben Cd(II). *Sains dan Terap Kim.* 2010;4(2):179-189.
13. Hafni MS, Zilfa, Suhaili R. Biosorption metal ion of Pb (II) and Cd (II) using kepok banana weevil powder (*Musa balbiana colla*). *J Chem Pharm Res.* 2015;7(9):135-138.
14. Zein R, Suciandica M, Fauzia S. Modification Leaf Dregs of Lemongrass With Citric Acid for Cd(II) Removal. 2022;7(1):63-81.
15. Hevira L, Munaf E, Zein R. The use of *terminalia catappa* L. Fruit shell as biosorbent for the removal of Pb(II), Cd(II) and Cu(II) ion in liquid waste. *J Chem Pharm Res.* 2015;7(10):79-89.
16. Gao X, Zhang H, Chen K, Zhou J, Liu Q. Removal of heavy metal and sulfate

- ions by cellulose derivative-based biosorbents. *Cellulose*. 2018;25(4):2531-2545. doi:10.1007/s10570-018-1690-x
17. Kaleka N. *Pisang-Pisang Komersial*. Solo: Arcita; 2013.
 18. Borborah K, Borthakur SK, Tanti B. Musa balbisiana colla-taxonomy, traditional knowledge and economic potentialities of the plant in Assam, India. *Indian J Tradit Knowl*. 2016;15(1):116-120.
 19. Badan Pusat Statistik. *Produksi Tanaman Buah-Buahan*. Padang; 2020.
 20. Venkateshwaran N, Elayaperumal A. Banana fiber reinforced polymer composites - A review. *J Reinf Plast Compos*. 2010;29(15):2387-2396. doi:10.1177/0731684409360578
 21. Kuncoro EB. *Akuarium Laut*. Yogyakarta: Kanisius; 2004.
 22. Handayanto. *Fitoremediasi Dan Phytomining Logam Berat Pencemaran Tanah*. Malang: Ub Press; 2017.
 23. Sembel DT. *Toksikologi Lingkungan*. Yogyakarta: Andi Offset; 2015.
 24. Sutrisno T, Suciastuti E. *Teknologi Penyediaan Air Bersih*. Jakarta: Rineka Cipta; 2006.
 25. Letterman RD. *Water Quality and Treatment*. New York: McGraw Hill; 1999.
 26. Purwaningsih D. Adsorpsi Multi Logam Ag(I), Pb(II), Cr(III), Cu(II) dan Ni(II) pada Hibrida Etilendiamino-Silika dari Abu Sekam Padi. *J Penelit Saintek*. 2009;14(1):59-76.
 27. Zein R, Wardana N, Refilda, Aziz H. Kulit Salak sebagai Biosorben Potensial untuk Pengolahan Timbal(II) dan Cadmium(II) dalam Larutan. *Chim Nat Acta*. 2018;6(1):93-100.
 28. Sembodo B. Isoterm Keseimbangan Adsorpsi Timbal Pada Abu Sekam Padi. *Ekuilibrum*. 2005;4(2):100-105.
 29. Gupta NK, Gupta A, Ramteke P, Sahoo H, Sengupta A. Biosorption-a green method for the preconcentration of rare earth elements (REEs) from waste solutions: A review. *J Mol Liq*. 2019;274:148-164. doi:10.1016/j.molliq.2018.10.134
 30. Al-Ghouti MA, Da'ana DA. Guidelines for the use and interpretation of adsorption isotherm models: A review. *J Hazard Mater*. 2020;393(January):122383. doi:10.1016/j.jhazmat.2020.122383
 31. Foo KY, Hameed BH. Insights into the modeling of adsorption isotherm systems. *Chem Eng J*. 2010;156(1):2-10. doi:10.1016/j.cej.2009.09.013
 32. Ahmaruzzaman M. Adsorption of phenolic compounds on low-cost adsorbents: A review. *Adv Colloid Interface Sci*. 2008;143(1-2):48-67. doi:10.1016/j.cis.2008.07.002
 33. Putri KNA, Keereerak A, Chinpa W. Novel cellulose-based biosorbent from lemongrass leaf combined with cellulose acetate for adsorption of crystal violet. *Int J Biol Macromol*. 2020;156:762-772. doi:10.1016/j.ijbiomac.2020.04.100
 34. Prasad M, Saxena S, Amritphale, Chandra N. Kinetics and Isotherm for Aqueous Lead Adsorption by Natural Minerals. *Ind Eng Chem*. 2000.

35. Ramadhani P, Chaidir Z, Zilfa, Tomi ZB, Rahmiarti D, Zein R. Shrimp shell (*Metapenaeus monoceros*) waste as a low-cost adsorbent for metanil yellow dye removal in aqueous solution. *Desalin Water Treat.* 2020;197:413-423. doi:10.5004/dwt.2020.25963
36. Qi Y, Zhu J, Fu Q, Hu H, Huang Q. Sorption of Cu by humic acid from the decomposition of rice straw in the absence and presence of clay minerals. *J Environ Manage.* 2017;200:304-311. doi:10.1016/j.jenvman.2017.05.087
37. Nafi'ah R. Kinetika Adsorpsi Pb (II) dengan Adsorben Arang Aktif dari Sabut Siwalan Kinetics Adsorption Of Pb (II) By Siwalan Fiber. *J Farm Sains dan Prakt.* 2016;1(2):28-37.
38. Plazinski W, Rudzinski W, Plazinska A. Theoretical models of sorption kinetics including a surface reaction mechanism: A review. *Adv Colloid Interface Sci.* 2009;152(1-2):2-13. doi:10.1016/j.cis.2009.07.009
39. Simonin JP. On the comparison of pseudo-first order and pseudo-second order rate laws in the modeling of adsorption kinetics. *Chem Eng J.* 2016;300:254-263. doi:10.1016/j.cej.2016.04.079
40. Vincent T, Taulemesse JM, Dauvergne A, Chanut T, Testa F, Guibal E. Thallium(I) sorption using Prussian blue immobilized in alginate capsules. *Carbohydr Polym.* 2014;99:517-526. doi:10.1016/j.carbpol.2013.08.076
41. Tan KL, Hameed BH. Insight into the adsorption kinetics models for the removal of contaminants from aqueous solutions. *J Taiwan Inst Chem Eng.* 2017;74:25-48. doi:10.1016/j.jtice.2017.01.024
42. Setiabudi HD, Jusoh R, Suhaimi SFRM, Masrur SF. Adsorption of methylene blue onto oil palm (*Elaeis guineensis*) leaves: Process optimization, isotherm, kinetics and thermodynamic studies. *J Taiwan Inst Chem Eng.* 2016;63:363-370. doi:10.1016/j.jtice.2016.03.035
43. Kristianingrum S. *Spektroskopi Ultra Violet Dan Sinar Tampak (Spektroskopi UV-Vis)*. Universitas Negeri Yogyakarta; 2016.
44. Nasir M. *Spektrometri Serapan Atom*. Aceh: Syiah Kuala University Press; 2020.
45. Fajar Nugraha, Apridamayanti P, Kurniawan H, et al. Analisis Kadar Kalium Ekstrak Kombinasi Kulit Pisang (*Musa paradisiaca* L.) dan Kulit Nanas (*Ananas comosus* (L.) Merr) Secara Spektrofotometri Serapan Atom. *J Sains dan Kesehat.* 2021;3(6):846-852. doi:10.25026/jsk.v3i6.791
46. Mohamed MA, Jaafar J, Ismail AF, Othman MHD, Rahman MA. Fourier Transform Infrared (FTIR) Spectroscopy. *Membr Charact.* 2017:3-29.
47. Nandiyanto ABD, Oktiani R, Ragadhita R. How to read and interpret FTIR spectroscopy of organic material. *Indones J Sci Technol.* 2019;4(1):97-118. doi:10.17509/ijost.v4i1.15806
48. Abdullah A, Mohammed A. Scanning Electron Microscopy (SEM): A Review. *Proc 2018 Int Conf Hydraul Pneum - HERVEX.* 2019:77-85.
49. Badan Standardisasi Nasional. *SNI 6989.16:2009 Air Dan Limbah-Bagian 16: Cara Uji Kadmium (Cd) Secara Spektrofotometri Serapan Atom (SSA)*. Jakarta; 2009.

50. Badan Standardisasi Nasional. *Air Dan Air Limbah-Bagian 20: Uji Sulfat(SO42-) SNI 6989.20:2009*. Jakarta; 2009.
51. Hevira L, Zilfa, Rahmayeni, Ighalo JO, Zein R. Biosorption of indigo carmine from aqueous solution by Terminalia Catappa shell. *J Environ Chem Eng*. 2020;8(5):104290. doi:10.1016/j.jece.2020.104290
52. Sreenivas KM, Inarkar MB, Gokhale S V., Lele SS. Re-utilization of ash gourd (Benincasa hispida) peel waste for chromium (VI) biosorption: Equilibrium and column studies. *J Environ Chem Eng*. 2014;2(1):455-462. doi:10.1016/j.jece.2014.01.017
53. Martín-Lara MA, Blázquez G, Calero M, Almendros AI, Ronda A. Binary biosorption of copper and lead onto pine cone shell in batch reactors and in fixed bed columns. *Int J Miner Process*. 2016;148:72-82. doi:10.1016/j.minpro.2016.01.017
54. Kosmulski M. *Surface Charging and Point of Zero Charge*.; 2009.
55. Khan TA, Chaudhry SA, Ali I. Equilibrium uptake, isotherm and kinetic studies of Cd(II) adsorption onto iron oxide activated red mud from aqueous solution. *J Mol Liq*. 2015;202:165-175. doi:10.1016/j.molliq.2014.12.021
56. Zou W, Bai H, Gao S, Li K. Characterization of modified sawdust, kinetic and equilibrium study about methylene blue adsorption in batch mode. *Korean J Chem Eng*. 2013;30(1):111-122. doi:10.1007/s11814-012-0096-y
57. Abdi O, Kazemi M. A review study of biosorption of heavy metals and comparison between different biosorbents. *J Mater Environ Sci*. 2015;6(5):1386-1399.
58. Matei G, Kiptoo J, Oyaro N, Onditi A. Biosorption of selected heavy metals by the biomass of the green alga Spirogyra sp. *Facta Univ - Ser Physics, Chem Technol*. 2014;12(1):1-15. doi:10.2298/fupct1401001m
59. Thillainatarajan S, Thenkulazhi M. Separation of lead (II) ions from aqueous solutions by adsorption on kaoline. *J Chem Pharm Res*. 2016;8(2):413-420.
60. Fauzia S, Aziz H, Dahlan D, Zein R. Study of equilibrium, kinetic and thermodynamic for removal of Pb(II) in aqueous solution using Sago bark (Metroxylon sago). *AIP Conf Proc*. 2018;2023(Ii). doi:10.1063/1.5064078
61. Derakhshan Z, Baghapour MA, Ranjbar M. Adsorption of Methylene Blue Dye from Aqueous Solutions by Modified Pumice Stone: Kinetics and Equilibrium Studies. *Heal Scope*. 2013.
62. Mushtaq M, Bhatti HN, Iqbal M, Noreen S. Eriobotrya japonica seed biocomposite efficiency for copper adsorption: Isotherms, kinetics, thermodynamic and desorption studies. *J Environ Manage*. 2016;176:21-33. doi:10.1016/j.jenvman.2016.03.013
63. Maslahat M, Taufik A, Subagja PW. Pemanfaatan Limbah Cangkang Telur Sebagai Biosorben untuk Adsorpsi Logam Pb dan Cd. *J Sains Nat*. 2017;5(1):92. doi:10.31938/jsn.v5i1.104
64. Wulandari Y, Kurniasari L, Riwayati I. Adsorpsi Logam Timbal dalam Larutan Menggunakan Kulit Ketela Rambat (Ipomoea batatas L). 2014:75-80.

65. Kementrian Lingkungan Hidup dan Kehutanan Republik Indonesia. *Peraturan Menteri Lingkungan Hidup Dan Kehutanan Republik Indonesia Nomor 6 Tahun 2021.*; 2021.
66. Kementrian Kesehatan Republik Indonesia. *Peraturan Menteri Kesehatan Republik Indonesia Nomor 32 Tahun 2017 Tentang Standar Baku Mutu Kesehatan Lingkungan Dan Persyaratan Kesehatan Air Untuk Keperluan Higiene Sanitasi, Kolam Renang, Solus Per Aqua Dan Pemandian Umum.*; 2017.
67. Bulgariu L, Escudero LB, Bello OS, et al. The utilization of leaf-based adsorbents for dyes removal: A review. *J Mol Liq.* 2019;276:728-747. doi:10.1016/j.molliq.2018.12.001

