

DAFTAR PUSTAKA

- Abdullah, M. and Khairurrijal, K., 2009, Review: Karakterisasi Nanomaterial, *J. Nano Saintek*, 2, 1–9.
- Aisyahlika, S.Z., Firdaus, M.L., and Elvia, R., 2018, Kapasitas Adsorpsi Arang Aktif Cangkang Bintaro (*Cerbera odollam*) Terhadap Zat Warna Sintesis Reactive RED-120 Dan Reactive BLUE-198, *J. Pendidik. Dan Ilmu Kim.*, 2, 148–155.
- Akram, M., Bhatti, H.N., Iqbal, M., Noreen, S., and Sadaf, S., 2017, Biocomposite efficiency for Cr(VI) adsorption: Kinetic, equilibrium and thermodynamics studies, *J. Environ. Chem. Eng.*, 5, 400–411.
- AL-Othman, Z.A., Ali, R., and Naushad, M., 2012, Hexavalent chromium removal from aqueous medium by activated carbon prepared from peanut shell: Adsorption kinetics, equilibrium and thermodynamic studies, *Chem. Eng. J.*, 184, 238–247.
- Ananta, S., Saumen, B., and Vijay, V., 2015, Adsorption Isotherm, Thermodynamic and Kinetic Study of Arsenic (III) on Iron Oxide Coated Granular Activated Charcoal, *Int. Res. J. Environ. Sci. Int. Sci. Congr. Assoc.*, 4, 64–77.
- Anggraeni, Hasibuan, S., Malik, B., and Wijaya, R., 2013, Improving The Quality of Tofu Waste as A Source of Feed Through Fermentation Using the *Bacillus amyloliquefaciens* Culture, *Int. J. Adv. Sci. Eng. Inf. Technol.*, 3, 22–25.
- Anggriani, U.M., Hasan, A., and Purnamasari, I., 2021, Kinetika Adsorpsi Karbon Aktif Dalam Penurunan Konsentrasi Logam Tembaga (Cu) dan Timbal (Pb), *J. Kinet.*, 12, 29–37.
- Anwar, N.A.F., Meicahayanti, I., and Rahayu, D.E., 2022, Pengaruh Variasi Waktu Kontak Dan Massa Adsorben Kulit Jeruk Siam (*Citrus Nobilis*) Terhadap Penyisihan Kadmium (Cd) Dan Merkuri (Hg), *J. Environ. Technol.*, 6, 45–52.
- Arabpour, A., Dan, S., and Hashemipour, H., 2021, Preparation and optimization of novel graphene oxide and adsorption isotherm study of methylene blue, *Arab. J. Chem.*, 14, 103003.
- Arvianto, R.I., Mauludi, K., Damayanti, A.K., and Pradipta, M.F., 2019, Studi Kinetika Adsorpsi Emas Menggunakan Kulit Mangga (*Mangifera indica*) Termodifikasi Asam Sulfat, *Chim. Nat. Acta*, 7, 1–6.
- Astuti, W., 2018, Adsorpsi Menggunakan Material Berbasis Lignoselulosa,.
- Castro-Castro, J.D., Macías-Quiroga, I.F., Giraldo-Gómez, G.I., and Sanabria-González, N.R., 2020, Adsorption of Cr(VI) in Aqueous Solution Using a Surfactant-Modified Bentonite, *Sci. World J.*, 17, 1–9.
- Castro, R.S.D., Caetano, L., Ferreira, G., Padilha, P.M., Saeki, M.J., Zara, L.F., Martines, M.A.U., and Castro, G.R., 2011, Banana Peel applied to the solid phase extraction of copper and lead from river water: Preconcentration of metal ions with a fruit waste, *Ind. Eng. Chem. Res.*, 50, 3446–3451.
- Chaniasi, V., Oktavia, B., Dewata, I., and Putra, A., 2022, Penentuan Kondisi Optimum Penyerapan Anion Kromat Pada Silika Termodifikasi Dimetilamina, *Periodic*, 11, 93–96.

- Cheng, G. and Li, X., 2009, Bioreduction of chromium (VI) by *Bacillus* sp. isolated from soils of iron mineral area, *Eur. J. Soil Biol.*, 45, 483–487.
- Dada, A., Olalekan, A., Olatunya, A., and Dada, O., 2012, Langmuir, Freundlich, Temkin and Dubinin–Radushkevich Isotherms Studies of Equilibrium Sorption of Zn²⁺ Unto Phosphoric Acid Modified Rice Husk, *IOSR J. Appl. Chem.*, 3, 38–45.
- Dewi, R., Azhari, A., and Nofriadi, I., 2021, Aktivasi Karbon Dari Kulit Pinang Dengan Menggunakan Aktivator Kimia KOH, *J. Teknol. Kim. Unimal*, 9, 12–22.
- Dewi Rakhmania, C., Khaeronnisa, I., Ismuyanto, B., and Nurul Faiqotul Himma, dan, 2017, Adsorpsi Ion Kalsium Menggunakan Biomassa Eceng Gondok (*Eichhornia crassipes*) Diregenerasi HCl, *J. Rekayasa Bahan Alam dan Energi Berkelanjutan*, 1, 16–24.
- Erprihana, A.A. and Hartanto, D., 2014, Pembuatan Karbon Aktif Dari Kulit Jeruk Keprok (*Citrus reticulata*) Untuk Adsorpsi Pewarna Remazol Brilliant Blue, *J. Bahan Alam Terbarukan*, 3, .
- Estiaty, L.M., 2012, Keseimbangan Dan Kinetika Adsorpsi Ion Cu²⁺ Pada Zeolit-H, *J. Ris. Geol. dan Pertamb.*, 22, 115.
- Gautam, R.K., Mudhoo, A., Lofrano, G., and Chattopadhyaya, M.C., 2014, Biomass-Derived Biosorbents for Metal Ions Sequestration: Adsorbent Modification and Activation Methods and Adsorbent Regeneration, *J. Environ. Chem. Eng.*, 2, 239–259.
- Giri, H.P.D., Sudiarta, I.W., and Asih, I.A.R.A., 2014, Optimasi Adsorpsi Cr(VI) Pada Silika Gel Dari Abu Sekam Padi Termodifikasi Difenilkarbazida (Si-Dpzida), *J. Kim.*, 8, 198–204.
- Gokce, Y. and Aktas, Z., 2014, Nitric acid modification of activated carbon produced from waste tea and adsorption of methylene blue and phenol, *Appl. Surf. Sci.*, 313, 1–35.
- Habeeb, O.A., Kanthasamy, R., Ali, G.A.M., Yunus, R.B.M., and Olalere, O.A., 2017, Kinetic, isotherm and equilibrium study of adsorption of hydrogen sulfide from wastewater using modified eggshells, *IIUM Eng. J.*, 18, 13–25.
- Hakim, A.R., 2021, Pengaruh Tegangan Listrik Dan Waktu Pelapisan Terhadap Berat Dan Ketebalan Pelapisan Chrom Pada Pelat Baja Carbon Rendah, 4, 330–334.
- Hartanto, D., Purbaningtiyas, T.E., Fansuri, H., and Prasetyoko, D., 2011, Karakterisasi Struktur Pori dan Morfologi ZSM-2 Mesopori yang Disintesis dengan Variasi Waktu Aging, *J. Ilmu Dasar*, 12, 80–90.
- Haryanto, B., Sinaga, W.K., and Saragih, F.T., 2019, Kajian Model Interaksi pada Adsorpsi Logam Berat Kadmium (Cd²⁺) dengan Menggunakan Adsorben dari Pasir Hitam, *J. Tek. Kim. USU*, 8, 79–84.
- Ho, Y.S., 2004, Citation review of Lagergren kinetic rate equation on adsorption reactions, *Scientometrics*, 59, 171–177.
- Hotasi, B.T., Christian, Y., Kristianto, H., and Arie, A.A., 2018, Studi Adsorpsi Biner Zat Warna dengan Karbon Aktif, In, *Prosiding Seminar Nasional Teknik Kimia “Kejuangan.”*, pp. 1–7.
- Hu, Q. and Zhang, Z., 2019, Application of Dubinin – Radushkevich isotherm model

- at the solid/solution interface : A theoretical analysis, *J. Mol. Liq.*, 277, 646–648.
- Indah, D.R., Hatimah, H., and Hulyadi, 2021, Efektivitas Ampas Tahu Sebagai Adsorben Logam Tembaga Pada Air Limbah Industri, *Hydrog. J. Kependidikan Kim.*, 8, 58–66.
- Irawan, C., 2018, Pengaruh Konsentrasi Adsorbat Terhadap Efektivitas Penurunan Logam Fe Dengan Menggunakan Fly Ash Sebagai Adsorben The, *Seminastika*, 291–293.
- Jin, X., Liu, Y., Tan, J., Owens, G., and Chen, Z., 2018, Removal of Cr(VI) from aqueous solutions via reduction and absorption by green synthesized iron nanoparticles, *J. Clean. Prod.*, 176, 929–936.
- Kamel, A.H., 2013, Preparation and Characterization of Innovative Selective Imprinted Polymers for the Removal of Hazardous Mercury Compounds From Aqueous Solution, *Life Sci. J.*, 10, 1657-.
- Kosim, M.E., Siskayanti, R., Prambudi, D., and Rusanti, W.D., 2022, Perbandingan Kapasitas Adsorpsi Karbon Aktif Dari Kulit Singkong Dengan Karbon Aktif Komersil Terhadap Logam Tembaga Dalam Limbah Cair Elektroplating, *J. Redoks*, 7, 36–47.
- Kumarasinghe, D., Pettigrew, L., and Nghiem, L.D., 2009, Removal Of Heavy Metals From Mining Impacted Water By An Electrocoagulation-Ultrafiltration Hybrid Process, *Desalin. Water Treat.*, 11, 66–72.
- Kusdarini, E., Budianto, A., and Ghafarunnisa, D., 2017, Produksi Karbon Aktif Dari Batubara Bituminus Dengan Aktivasi Tunggal H₃PO₄, Kombinasi H₃PO₄-NH₄HCO₃, Dan Termal, *Reaktor*, 17, 74–80.
- Kusumawardani, R., Zaharah, T.A., and Destiarti, L., 2018, Adsorpsi kadmium(II) menggunakan adsorben selulosa ampas tebu teraktivasi asam nitrat, *J. Kim. Khatulistiwa*, 7, 75–83.
- Laos, L.E. and Selan, A., 2016, Pemanfaatan Kulit Singkong sebagai Bahan Baku Karbon Aktif, *J. Ilmu Pendidik. Fis.*, 1, 32–36.
- Lesaoana, M., Mlaba, R.P.V., Mtunzi, F.M., Klink, M.J., Edijike, P., and Pakade, V.E., 2019, Influence of inorganic acid modification on Cr(VI) adsorption performance and the physicochemical properties of activated carbon, *South African J. Chem. Eng.*, 28, 8–18.
- Li, S., Zhu, D., Li, K., Yang, Y., Lei, Z., and Zhang, Z., 2013, Soybean Curd Residue: Composition, Utilization, and Related Limiting Factors, *ISRN Ind. Eng.*, 2013, 1–8.
- Ma'rifah, M., Jamaluddin, J., Yuyun, Y., and Widodo, A., 2018, Pengaruh Penambahan Aktivator Dalam Pembuatan Karbon Aktif Ampas Tahu Sebagai Adsorben Minyak Jelantah, *Kovalen J. Ris. Kim.*, 4, 88–97.
- Maihendra, Fadli, A., and Zultiniar, 2016, Kinetika Adsorpsi pada Penjerapan Ion Timbal Pb²⁺ Terlarut dalam Air Menggunakan Partikel Tricalcium Phosphate, *Jom. F., Teknik*, 3, 1–5.
- Maslukah, L., Zainuri, M., Wirasatriya, A., and Widiaratih, R., 2020, Studi Kinetika Adsorpsi Dan Desorpsi Ion Fosfat (PO₄²⁻) Di Sedimen Perairan Semarang Dan

- Jepara, *J. Ilmu dan Teknol. Kelaut. Trop.*, 12, 385–396.
- Masruhin, M., Rasyid, R., and Yani, S., 2018, Penjerapan Logam Berat Timbal (Pb) Dengan Menggunakan Lignin Hasil Isolasi Jerami Padi, *J. Chem. Process Eng.*, 3, 11-20.
- Maula, N., Hidayah, M., and Azizati, Z., 2020, Adsorpsi Ion Logam Kromium Heksavalen Cr (VI) Dalam Larutan Menggunakan Zeolit Berlapis Oksida Mangan (MnO₂), *Walisongo J. Chem.*, 3, 52–57.
- Monser, L. and Adhoum, N., 2002, Modified activated carbon for the removal of copper, zinc, chromium and cyanide from wastewater, *Sep. Purif. Technol.*, 26, 137–146.
- Moros, J., Garrigues, S., and Guardia, M. de la, 2010, Vibrational spectroscopy provides a green tool for multi-component analysis, *TrAC - Trends Anal. Chem.*, 29, 578–591.
- Nasruddin, M., Rosnelly, C.M., and Mulana, F., 2017, Adsorpsi Ion Logam Cr(VI) Dengan Menggunakan Karbon Aktif Dari Tempurung Kemiri (Aleurites Moluccana), *J. Ilmu Kebencanaan*, 4, 117–125.
- Neolaka, Y.A.B., Supriyanto, G., and Kusuma, H.S., 2019, Synthesis and Characterization of Natural Zeolite with Ordered Ion Imprinted Polymer Structures for Selective Cr(VI) Adsorption from Aqueous Solution, *Moroccan J. Chem.*, 7, 194–210.
- Niam, A.C., Fenelon, E., Ningsih, E., Mirzayanti, Y.W., and Kristanti, E., 2022, High-Efficiency Adsorption of Hexavalent Chromium from Aqueous Solution by Samanea saman Activated Carbon, *Adsorpt. Sci. Technol.*, 22, 1–10.
- Nuansa, C.G. and Istyanti, D.T., 2013, Kinetika Adsorpsi Kolesterol Daging Kambing Kinetika Adsorpsi Kolesterol Daging Kambing Menggunakan Adsorben Kitosan Dan Karbon Aktif, *J. Teknol. Kim. dan Ind.*, 2, 18–24.
- Nurafriyanti, Prihatini, N.S., and Syauqiah, I., 2017, Effect Of Variation Of pH And Adsorbent Weight In Cr Total Reduction In Artificially Waste Using Tea Leaves Dregs Adsorbents, *Jukung J. Tek. Lingkung.*, 3, 56–65.
- Nurhasni, N., Salimin, Z., and Nurfitriyani, I., 2013, Pengolahan Limbah Industri Elektroplating Dengan Proses Koagulasi Flokulasi, *J. Kim. Val.*, 3, 41–48.
- Nurhayati, Berliana, N., 2020, Kandungan nutrisi ampas tahu yang difermentasi dengan *Trichoderma viride*, *Saccaromyces cerevisiae* dan kombinasinya ., *J. Ilmu-Ilmu Peternak.*, 23, 104–113.
- Nurmalasari, D., Hastuti, R., and Widodo, D.S., 2015, Pengaruh Penambahan Polivinil Alkohol pada Biomassa Tongkol Jagung-Bulu Ayam sebagai Adsorben Campuran Ion Logam Tembaga dan Kromium, *J. Kim. Sains dan Apl.*, 18, 18–23.
- Pant, B.D., Neupane, D., Paudel, D.R., Chandra Lohani, P., Gautam, S.K., Pokhrel, M.R., and Poudel, B.R., 2022, Efficient Biosorption of Hexavalent Chromium from Water by Modified Arecanut Leaf Sheath, *Heliyon*, 8, 1–10.
- Pedroza, F.R.C., Aguilar, M. de J.S., Castillo, M.A.S., Luévanos, A.M., and Rodríguez, N.G.P., 2017, Adsorption of chromium from steel plating wastewater using blast furnace dust, *Rev. Int. Contam. Ambient.*, 33, 591–603.

- Petala, E., Dimos, K., Douvalis, A., Bakas, T., Tucek, J., Zbořil, R., and Karakassides, M.A., 2013, Nanoscale zero-valent iron supported on mesoporous silica: Characterization and reactivity for Cr(VI) removal from aqueous solution, *J. Hazard. Mater.*, 261, 295–306.
- Prasetyaningrum, A. and Dharmawan, Y., 2018, Aplikasi Teknologi Elektrokoagulasi Pada Pengolahan Limbah Industri Elektroplating Sebagai Upaya Menghasilkan Produksi Kerajinan Logam Berbasis Green Technology, *Riptek*, 12, 37–44.
- Pratiwi, V.M., Sulistijono, Hidayat, I.P., and Zuniandra, H., 2019, Pengaruh Variasi Waktu dan Temperatur Kekuatan Lekat dan Ketahanan Korosi pada Baja, *J. Tek. ITS*, 8, 218–223.
- Previanti, P., Sugiani, H., Pratomo, U., and Sukrido, S., 2015, Daya Serap Dan Karakterisasi Arang Aktif Tulang Sapi Yang Teraktivasi Natrium Karbonat Terhadap Logam Tembaga, *Chim. Nat. Acta*, 3, 48–53.
- Priyantha, N. and Bandaranayaka, A., 2010, Optimization of parameters for effective removal of Cr(VI) species by burnt brick clay, *J. Natl. Sci. Found. Sri Lanka*, 38, 109–114.
- Puasa, S.W., Ismail, K.N., Mahadi, M.A.A., Zainuddin, N.A.M., and Mukelas, M.N.M., 2021, Polynomial regression analysis for the removal of heavy metal mixtures in coagulation/flocculation of electroplating wastewater, *Indones. J. Chem.*, 21, 46–56.
- Pujiono, F.E. and Mulyati, T.A., 2017, Potential of Activated Carbon Produced From Agriculture Waste for Water Treatment Material, *J. Wiyata*, 1, 35–43.
- Purbaningtias, T. esti, Kurniawati, P., Wiyantoko, B., Prasetyoko, D., and Suprpto, S., 2017, Pengaruh Waktu Aging Pada Modifikasi Pori Zeolit Alam Dengan Ctabr, *JST (Jurnal Sains dan Teknol.*, 6, 321–330.
- Purwitasari, D.G., Tussania, R., and Fathoni, R., 2022, Adsorpsi Logam Kadmium (Cd) Pada Kadmium Sulfat (CdSO₄) Menggunakan Batang Pohon Pisang Sebagai Adsorben, *J. Chemurg.*, 6, 131–136.
- Putri, R.W., Haryati, S., and Rahmatullah, 2019, Pengaruh suhu karbonisasi terhadap kualitas karbon aktif dari limbah ampas tebu, *J. Tek. Kim.*, 25, 1–4.
- Rafati, L., Ehrampoush, M.H., Rafati, A.A., Mokhtari, M., and Mahvi, A.H., 2016, Modeling of adsorption kinetic and equilibrium isotherms of naproxen onto functionalized nano-clay composite adsorbent, *J. Mol. Liq.*, 224, 832–841.
- Rahmadhanir, 'Aini, Nugrahani, R.A., Fithriyah, N., and Lestariningsih, T., 2020, Lead Adsorption in Lubricant Waste using Zeolite, *J. Rekayasa Proses*, 14, 1–7.
- Rahman, A., Aziz, R., Indrawati, A., and Usman, M., 2020, Pemanfaatan beberapa jenis arang aktif sebagai bahan adsorben logam berat cadmium (Cd) pada tanah sedimen drainase kota medan sebagai media tanam, *J. Agroteknologi dan Ilmu Pertan.*, 5, 42–54.
- Rathore, E., Maji, K., and Biswas, K., 2021, Nature-Inspired Coral-like Layered [Co_{0.79}Al_{0.21}(OH)₂(CO₃)_{0.11}]·mH₂O for Fast Selective ppb Level Capture of Cr(VI) from Contaminated Water, *Inorg. Chem.*, 60, 10056–10063.
- Ratnaningsih, W., 2022, Adsorption Of Hexavalent Chromium (Cr(VI)) By Cassava

- Peel (Manihot Esculenta) Modified With Nitric Acid, *Berk. Penelit. Teknol. Kulit, Sepatu, Dan Prod. Kulit Politek. Atk Yogyakarta*, 21, 34–46.
- Riskhi, E.M. and Sitorus, S., 2017, Pemanfaatan Ampas Tahu Sebagai Arang Aktif Dalam Menurunkan Kadar Cod , Nitrit Dan Nitrat Pada Limbah Cair Industri Tahu Utilization of Dregs As Activated Charcoal in Lowering Cod , Nitrite and Nitrate in Tofu Industry Liquid Waste,. In, *Prosiding Seminar Kimia, [S.l.]*, pp. 124–128.
- Rohmah, P.M. and Redjeki, A.S., 2014, Pengaruh Waktu Karbonisasi Pada Pembuatan Karbon Aktif Berbahan Baku Sekam Padi Dengan Aktivator KOH, *Konversi*, 3, 19–27.
- Safi'i, F.F. And Mitarlis, 2013, Pemanfaatan Limbah Padat Proses Sintesis Pembuatan Furfural Dari Sekam Padi Sebagai Arang Aktif, *Unesa J. Chem.*, 2, 8–16.
- Safrianti, I., Nelly, W., And Zaharah, T.A., 2012, Adsorpsi Timbal (II) Oleh Selulosa Limbah Jerami Padi Teraktivasi Asam Nitrat: Pengaruh Ph Dan Waktu Kontak, *Jkk*, 1, 1–7.
- Sahara, E., Sulihingtyas, W.D., And Mahardika, I.P.A.S., 2017, Pembuatan Dan Karakterisasi Arang Aktif Dari Batang Tanaman Gumitir (Tagetes Erecta) Yang Diaktivasi Dengan H₃PO₄, *J. Kim.*, 11, 1–9.
- Sailah, I., Mulyaningsih, F., Ismayana, A., Puspaningrum, T., Adnan, A.A., and Indrasti, N.S., 2020, Kinerja Karbon Aktif Dari Kulit Singkong Dalam Menurunkan Konsentrasi Fosfat Pada Air Limbah Laundry, *J. Teknol. Ind. Pertan.*, 30, 180–189.
- Sanjaya, A.S. and Agustine, R.P., 2015, Studi Kinetika Adsorpsi Pb Menggunakan Arang Aktif Dari Kulit Pisang, *Konversi*, 4, 17-24.
- Saputri, C.A., 2020, Kapasitas Adsorpsi Serbuk Nata De Coco (Bacterial Sellulose) Terhadap Ion Pb²⁺ Menggunakan Metode Batch, *J. Kim.*, 14, 71–76.
- Sembodo, B.S.T., 2005, Isoterm kesetimbangan adsorpsi timbal pada abu sekam padi, 4, 100–105.
- Shahmohammadi-Kalalagh, S., Babazadeh, H., Nazemi, A., and Manshouri, M., 2011, Isotherm and Kinetic Studies on Adsorption of Pb, Zn and Cu by Kaolinite, *Casp. J. Environ. Sci.*, 9, 243–255.
- Shi, T., Wang, Z., Liu, Y., Jia, S., and Changming, D., 2009, Removal of hexavalent chromium from aqueous solutions by D301, D314 and D354 anion-exchange resins, *J. Hazard. Mater.*, 161, 900–906.
- Singh, S., Verma, L.K., Sambi, S.S., and Sharma, S.K., 2008, Adsorption Behaviour of Ni (II) from Water onto Zeolite X: Kinetics and Equilibrium Studies,. In, *Proceedings of the World Congress on Engineering and Computer Science - WCECS 2008.*, pp. 1–6.
- Sudana, I.M., Arsani, I.A.A., and Waisnawa, I.G.. S., 2014, Alat Simulasi Pelapisan Logam dengan Metode Elektroplating, *J. Log.*, 14, 190–198.
- Sudiarta, I.W., Prameswari, A.A.S.D., and S. Negara, I.M., 2022, Biosorpsi Cr(III) Oleh Biosorben Kulit Kapuk (Ceiba pentandra (L.) Gaertn) Teraktivasi Asam Nitrat, *J. Kim.*, 16, 93–100.

- Suhud, I., Tiwow, V., and Hamzah, B., 2012, Adsorption of Cadmium(II) Ion from its Solution by Using Biomass of Roots and Stemsâ Water Spinach (*Ipomoea Aquatic* Forsk), *J. Akad. Kim.*, 1, 224182.
- Sukarjo, H. and Pani, S., 2018, Pengaruh Variasi Kuat Arus Listrik dan Waktu Electroplating Nickel-Chrome terhadap Ketebalan Lapisan pada Permukaan Baja Karbon Rendah, *J. ENGINE*, 2, 18–25.
- Sulastri, S., Nuryono, Kartini, I., and Kunarti, E.S., 2014, Kinetika Dan Keseimbangan Adsorpsi Ion Kromium(III) Dalam Larutan Pada Senyawa Silika Dan Modifikasi Silika Hasil Sintesis Dari Abu Sekam Padi Siti, *J. Penelit. Saintek*, Vol. 19, Nomor 2, 19, 33.
- Suminten, N.K., Sudiarta, W., and Simpen, I.N., 2014, Adsorpsi Ion Logam Cr(III) Pada Silika Gel Dari Abu Sekam Padi Termodifikasi Ligan Difenilkarbazon (Si-DPZon), *J. Kim.*, 8, 231–236.
- Suprihatin and Erriek, A., 2009, Biosorpsi Logam Cu(II) dan Cr(VI) pada Limbah Elektroplating dengan Menggunakan Biomasa *Phanerochaete Chrysosporium*, *J. Tek. Kim.*, 4, 250–254.
- Syauqiah, I., Amalia, M., and Kartini, H.A., 2011, Analisis Variasi Waktu Dan Kecepatan Pengaduk Pada Proses Adsorpsi Limbah Logam Berat Dengan Arang Aktif, *Info Tek.*, 12, 11–20.
- Tan, Y.H., Davis, J.A., Fujikawa, K., Ganesh, N.V., Demchenko, A. V., and Stine, K.J., 2012, Surface area and pore size characteristics of nanoporous gold subjected to thermal, mechanical, or surface modification studied using gas adsorption isotherms, cyclic voltammetry, thermogravimetric analysis, and scanning electron microscopy, *J. Mater. Chem.*, 22, 6733–6745.
- Tanasale, M.F.J.D.P., Male, Y.T., and Garium, N.B., 2020, Kinetika Adsorpsi Zat Warna Tartrazina Menggunakan Limbah Ampas Tahu sebagai Adsorben, *Fuller. J. Chem.*, 5, 63.
- Tauvana, A.I., 2016, Pengaruh Variasi Tegangan Dan Waktu Pelapisan Terhadap Kekilapan, Kekerasan Dan Kekasaran Permukaan Aluminium, *Kurvatek*, 1, 1–6.
- Ternero-Hidalgo, J.J., Rosas, J.M., Palomo, J., Valero-Romero, M.J., Rodríguez-Mirasol, J., and Cordero, T., 2016, Functionalization of activated carbons by HNO₃ treatment: Influence of phosphorus surface groups, *Carbon N. Y.*, 101, 409–419.
- Trihadiningrum, Y., Arinda, T., Sholikhah, U., Shovitri, M., Wilujeng, S.A., and Pandebesie, E.S., 2014, Bioremoval of Chromium, Copper and Cadmium by *Bacillus cereus* in Simulated Electroplating Wastewater, *IPTEK J. Proc. Ser.*, 1, 31–35.
- Trihadiningrum, Y., 2016, Pengelolaan Limbah Bahan Berbahaya & Beracun (B3), Teknosain, Yogyakarta.
- Tsybulskaya, O.N., Ksenik, T. V., Yudakov, A.A., and Slesarenko, V. V., 2019, Reagent Decontamination of Liquid Chrome-Containing Industrial Wastes, *Environ. Technol. Innov.*, 13, 1–17.
- Tumolo, M., Ancona, V., De Paola, D., Losacco, D., Campanale, C., Massarelli, C.,

- and Uricchio, V.F., 2020, Chromium pollution in European water, sources, health risk, and remediation strategies: An overview, *Int. J. Environ. Res. Public Health*, 17, 1–24.
- Utama, S., Kristianto, H., and Andreas, A., 2016, Adsorpsi Ion Logam Kromium (Cr (Vi)) Menggunakan Karbon Aktif dari Bahan Baku Kulit Salak,. In, *Prosiding Seminar Nasional Teknik Kimia “Kejuangan.”*, pp. 1–6.
- Utomo, S., 2014, Pengaruh Waktu Aktivasi dan Ukuran Partikel terhadap Daya Serap Karbon Aktif dari Kulit Singkong dengan Aktivator NaOH,. In, *Seminar Nasional Sains dan Teknologi.*, pp. 1–4.
- Widayat and Satriadi, H., 2005, Pemanfaatan Ampas Tahu Sebagai Bahan Baku Pembuatan Kecap Dengan Kapang *Aspergillus oryzae*, *Reaktor*, 9, 94–99.
- Wijayanti, I.E. and Kurniawati, E.A., 2019, Studi Kinetika Adsorpsi Isoterm Persamaan Langmuir dan Freundlich pada Abu Gosok sebagai Adsorben, *EduChemia (Jurnal Kim. dan Pendidikan)*, 4, 175.
- Yang, S.T., Chen, S., Chang, Y., Cao, A., Liu, Y., and Wang, H., 2011, Removal of methylene blue from aqueous solution by graphene oxide, *J. Colloid Interface Sci.*, 359, 24–29.
- Ye, Z., Yin, X., Chen, L., He, X., Lin, Z., Liu, C., Ning, S., Wang, X., and Wei, Y., 2019, An integrated process for removal and recovery of Cr(VI) from electroplating wastewater by ion exchange and reduction–precipitation based on a silica-supported pyridine resin, *J. Clean. Prod.*, 236, 117631.
- Yin, N., Wang, K., Wang, L., and Li, Z., 2016, Amino-Functionalized MOFs Combining Ceramic Membrane Ultrafiltration for Pb (II) Removal, *Chem. Eng. J.*, 306, 619–628.
- Zahra, N.L., Sugiyana, D., and Notodarmojo, S., 2014, Adsorption of Reactive Red 141 Textile Dye Onto Natural, *Arena Tekst.*, 29, 63–72.
- Zhang, Y., Lan, G., Liu, Y., Zhang, T., Qiu, H., Li, F., Yan, J., and Lu, Y., 2021, Enhanced Adsorption of Cr(VI) from Aqueous Solution by Zirconium Impregnated Chitosan Microspheres: Mechanism and Equilibrium, *Sep. Sci. Technol.*, 56, 2532–2545.
- Zulfi, F., Dahlan, K., and Sugita, P., 2014, Karakteristik Fluks Membran Dalam Proses Filtrasi Limbah Cair Industri Pelapisan Logam, *J. Biofisika*, 10, 19–29.
- Zulichatun, S., Jumaeri, and Kusumastuti, E., 2018, Manufacture of Activated Carbon Tofu Pulp and Application as Adsorbent Crystal Violet Color Substance and Congo Red, *Indones. J. Chem. Sci.*, 7, 228–235.
- Zulkifli, Taer, E., and Sugianto, 2015, Pembuatan Karbon Aktif Monolit dari Kayu Karet Menggunakan Aktivator KOH dan HNO₃ untuk Aplikasi Superkapasitor, *JOM FMIPA*, 2, 1–7.