

DAFTAR PUSTAKA

- Abukhadra, M. R., Bakry, B. M., Adlii, A., Yakout, S. M., & El-Zaidy, M. A. (2019). Facile conversion of kaolinite into clay nanotubes (KNTs) of enhanced adsorption properties for toxic heavy metals (Zn^{2+} , Cd^{2+} , Pb_2 , and Cr_6) from water. *Journal of Hazardous Materials*, 374(January), 296-308. <https://doi.org/10.1016/j.jhazmat.2019.04.047>
- AlMohaimadi, K. M., Albishri, H. M., Thumayri, K. A., AlSuhaimi, A. O., Mehdar, Y. T. H., & Hussein, B. H. M. (2024). Facile Hydrothermal Assisted Basic Catalyzed Sol Gel Synthesis for Mesoporous Silica Nanoparticle from Alkali Silicate Solutions Using Dual Structural Templates. *Gels*, 10(12). <https://doi.org/10.3390/gels10120839>
- Anggriawan, A., Yanggi Atwanda, M., Lubis, N., & Fathoni, an. (2019). Kemampuan Adsorpsi Logam Berat Cu Dengan Menggunakan Adsorben Kulit Jagung (*Zea Mays*) Adsorption Ability Of Cu Heavy Metal Using Corn Husk Adsorbens (*Zea Mays*). In *Jurnal Chemurgy* (Vol. 03, Issue 2)
- Anisa, Z., Mubarakah, L., Setyaningrum, D., & Novianto, H. (2023). Identifikasi Sifat Termal Dan Ikatan Batu Kapur Alam Dengan Menggunakan Dsc-Tga Dan Ftir. *Inovasi Teknik Kimia*, 8(3), 173-177
- Anugrahwati, M., Indah Fajarwati, F., & Awaln Safitri, R. (2021). Adsorpsi Pb(II) dari Air dengan Karbon Aktif dari Kulit Salak Pondoh: Kinetika dan Isoterm Adsorpsi. *Indonesian Journal of Chemical Research*, 6(2), 1-11. <https://doi.org/10.20885/ijcr.vo16.iss1.art1>
- Astuti, M. P., Notodarmojo, S., Priadi, C. R., & Padhye, L. P. (2023). Contaminants of emerging concerns (CECs) in a municipal wastewater treatment plant in Indonesia. *Environmental Science and Pollution Research*, 30(8), 21512–21532. <https://doi.org/10.1007/s11356-022-23567-8>
- Astuti, R., & Wahyuni, S. (2021). Modifikasi Material Adsorben dengan Polimer Hidrofilik untuk Penghilangan Kontaminan Organik dari Air. *Jurnal Teknologi Lingkungan*, 22(1), 45–53
- Baracchini, C., Messenger, L., Stocker, P., & Leignel, V. (2024). The Impacts of the Multispecies Approach to Caffeine on Marine Invertebrates. *Toxics*, 12(1). <https://doi.org/10.3390/toxics12010029>
- Benedini, L., Messina, P. V., Palma, S. D., Allemanni, D., & Schulz, P. C. (2012). The ascorbyl palmitate–polyethyleneglycol 400–water system phase behavior. *International Journal of Pharmaceutics*, 423(2), 192–199. <https://doi.org/10.1016/j.ijpharm.2011.11.012>
- Boer, D. G., Langerak, J., & Pescarmona, P. P. (2022). Zeolites as Selective Adsorbents for CO₂ Separation. *ACS Applied Energy Materials*. <https://doi.org/10.1021/acsaem.2c03605>
- Bukhtiyarova, MV, 2019. Tinjauan tentang pengaruh kondisi sintesis terhadap pembentukan hidroksida ganda berlapis. *J. Solid State Chem.* 269, 494–506. <https://doi.org/10.1016/j.jssc.2018.10.018>
- Chen, L., Wang, L., Wang, A., & Li, Z. (2017). Enhancement of adsorption performance of layered double hydroxides by polyethylene glycol modification for organic pollutants. *Journal of Hazardous Materials*, 331, 66–76. <https://doi.org/10.1016/j.jhazmat.2017.02.005>

- Cheng, W., Wan, T., Wang, X., Wu, W., & Hu, B. (2018). Plasma-grafted polyamine/hydrotalcite as high efficient adsorbents for retention of uranium (VI) from aqueous solutions. *Chemical Engineering Journal*, 342(December 2017), 103–111. <https://doi.org/10.1016/j.cej.2018.01.100>
- Departemen Kesehatan Republik Indonesia. *Farmakope Indonesia Edisi VI*. Jakarta: Kementerian Kesehatan Republik Indonesia; 2020
- Fajriani, I. Y., Syaiful, A. Z., & Ariani, F. (2022). Pemanfaatan Zeolit Yang Teraktivasi Asam Klorida (HCl) Sebagai Adsorben Logam Berat Timbal (Pb). *Saintis*, 3(1)
- Handoyo Sahumena, M., Ruslin, R., Asriyanti, A., & Nurrohanta Djuwarno, E. (2020). Identifikasi Jamu Yang Beredar Di Kota Kendari Menggunakan Metode Spektrofotometri Uv-Vis. *Journal Syifa Sciences and Clinical Research*, 2(2), 65-72. <https://doi.org/10.37311/jsscr.v2i2.6977>
- Hartawan, I. (2021). Penggunaan FTIR pada praktikum farmasi fisika untuk interaksi fisika menggunakan basis sediaan semi solid dengan bahan alam lokal. *Jurnal Penelitian Sains*, 23(1)
- Heraldry, E., Khoirina Dwi, N., & Heriyanto, H. (2017). Kalsinasi Ca-Mg-Al Hydrotalcite dari Brine Water dan Karakterisasinya. *Alchemy Jurnal Penelitian Kimia*, 13(2), 205–216. <https://doi.org/10.20961/alchemy.v13i2.5606>
- Ibnu Hajar, E. W., Sitorus, R. S., Mulyaningtyas, N., & Welan, F. J. (2018). Efektivitas Adsorpsi Logam Pb^{2+} Dan Cd^{2+} Menggunakan Media Adsorben Cangkang Telur Ayam. *Konversi*, 5(1), 1. <https://doi.org/10.20527/k.v5i1.4771>
- Kameliya, J., Leel, N. S., Mukeshchandra, G. S., Khalifa, M. E., El-Bahy, S. M., & Vyas, S. (2024). Rapid removal of methyl orange from aqueous media by modified Mg–Al layered double hydroxides. *Journal of the Indian Chemical Society*, 101(10), 101355. <https://doi.org/10.1016/j.jics.2024.101355>
- 3.1.1 Kimia, D. T., Haryanto, B., Sinaga, W. K., & Saragih, F. T. (2019). Jurnal Teknik Kimia-Usu Kajian Model Interaksi pada Adsorpsi Logam Berat Kadmium (Cd^{2+}) dengan Menggunakan Adsorben dari Pasir Hitam Study of Heavy Metals Cadmium Adsorption Capacity (Cd^{2+}) by Using Adsorbents of Black Sand. Jurnal Teknik Kimia USU, 08(2), 79-84. <https://talenta.usu.ac.id/jtk>**
- Kumawat, M. K., Tewatia, S., Ajmal, G., & Mittal, P. (2022). Caffeine in Tablet Dosage Form: Analytical Method Development and Validation by Using U.V. Spectroscopy. *International Journal of Life Science and Pharma Research*, 13(SP1), P107–P115. <https://doi.org/10.22376/ijlpr.2023.13.SP1.P107-P115>
- Kurniawati, T., & Zulkarnain, A. K. (2012). Pengaruh Penambahan Polietilen Glikol 400 Terhadap Absorpsi Piroksikam Secara in Situ the Influence of Polyethylene Glycol 400 on in Situ Piroxicam Absorption. *Abdul Karim Zulkarnain Majalah Farmaseutik*, 8(1), 127
- Li, T., Wu, J. J., Wang, X. G., & Huang, H. (2021). Particle Size Effect and Temperature Effect on the Pore Structure of Low-Rank Coal. *ACS Omega*, 6(8), 5865–5877. <https://doi.org/10.1021/acsomega.0c06280>
- Mandal, S., Kalaivanan, S., & Mandal, A. B. (2019). Polyethylene glycol-modified layered double hydroxides: Synthesis, characterization, and study on adsorption

- characteristics for removal of acid orange II from aqueous solution. ACS Omega, 4(2), 3745–3754. <https://doi.org/10.1021/acsomega.8b02743>
- Mufarrihati, F., Malik, I. A., Eka, V., & Putri, W. (2023). Sintesis Mg / Al Hidrotalsit dari MgCl₂ dan AlCl₃ dengan Metode Kopresipitasi Hidrotalsit atau disebut juga *Layer Double Hydroxides* (LDH) merupakan material yang dapat dimanfaatkan sebagai padatan pendukung katalis, adsorben, penukar anion, 3(6), 284–292. <https://doi.org/10.17977/um067v3i6p284-292>
- Munene, J. M., Onyatta, J. O., & Yusuf, A. O. (2020). Characterization of Water Hyacinth Powder Using FTIR Spectroscopy and the Adsorption Behaviour of Pb²⁺, Cd²⁺, Zn²⁺, Ni²⁺ and Cr²⁺ in Aqueous Solution. Asian Journal of Applied Chemistry Research, 6(1), 47–55. <https://doi.org/10.9734/ajacr/2020/v6i130151>
- Nurhasni, M.Si, N., Mar'af, R., & Hendrawati, H. (2018). Pemanfaatan Kulit Kacang Tanah (*Arachis hipogaea* L.) sebagai Adsorben Zat Warna Metilen Biru. Jurnal Kimia <https://doi.org/10.15408/jkv.v4i2.8895>
- Pavia, D. L., Lampman, G. M., Kriz, G. S., & Vyvyan, J. R. (2015). Introduction to Spectroscopy (5th ed.). Cengage Learning
- Permanasari, A. R., Pasonang, R., Hidayatulloh, C. Y., Al-Ayubi, S., Fahmi, R. M., Fadly, M., Kautsar, W., & Wibisono, W. (n.d.) (Vol. 2022, Issue 1). The effect of precipitation pH and temperature of The Mg/Al Hydrotalcite synthesis on the glucose isomerization. In International Journal Of Applied Technology Research <https://ijatr.polban.ac.id/>
- Putri, W. K., & Sabani. (2018). Jurnal Einstein Aktivasi Zeolit Alam Sebagai Adsorben Logam Berat Mg. Jurnal Einstein, 6(3), 22–28. <http://jurnal.unimed.ac.id/2012/index.php/einstene-issn:2407-747x,p-issn2338-1981>
- Putri, Y., & Hasna Oktaviana, A. (2024). Adsorpsi Zat Warna Remazol Brilliant Blue R Pada Limbah Industri Batik Menggunakan Adsorben dari Mahkota Buah Nanas Adsorption of Remazol Brilliant Blue R Dye on Batik Industry Waste Using Pineapple Crown Adsorbent. Jurnal Ilmiah Teknik Kimia, 2/(1), 2460-8203
- Quadra GR, Paranaiba JR, Vilas-Boas J, Roland F, Amado AM, Barros N, Dias RJP, Cardoso SJ (2020) A global trend of caffeine consumption over time and related-environmental impacts Environ Pollut 256:113343 <https://doi.org/10.1016/j.envpol.2019.113343>
- Ravuru, SS, Jana, A., De, S. (2019). Sintesis hidroksida ganda berlapis NiAl dengan interkalasi nitrat: Aplikasi dalam menghilangkan sianida dari limbah industri baja. Jurnal Bahan Berbahaya, 373, 791- 800. DOI:10.1016/j.jhazmat.2019.03.122
- Rodriguez-Narvaez OM, Peralta-Hernandez JM, Goonetilleke A, Bandala ER (2017) Treatment technologies for emerging contaminants in water: a review. Chem Eng J 323:20. <https://doi.org/10.1016/j.cej.2017.04.106>
- Sari, A. I. N., & Kuntari, K. (2019). Penentuan Kafein dan Parasetamol dalam Sediaan Obat Secara Simultan Menggunakan Spektrofotometer UV-Vis. IJCA (Indonesian Journal of Chemical Analysis), 2(01), 20-27. <https://doi.org/10.20885/ijca.vol2.iss1.art3>
- Singh, A. K., Chaubey, A. K., & Kaur, I. (2023). Remediation of water contaminated with antibiotics using biochar modified with *layered double hydroxide*: Preparation and performance. Journal of Hazardous Materials Advances, 10(March), 100286. <https://doi.org/10.1016/j.hazadv.2023.100286>

- Smith, B. C. (2020). *Infrared Spectral Interpretation: A Systematic Approach* (2nd ed.). CRC Press
- Stephanie Br Ginting, S., Astiarani, Y., Titi Santi, B. (2022). Ilmu Kesehatan Masyarakat dan Gizi, D., & Kedokteran dan Ilmu Kesehatan, F. (n.d.). Tingkat Pengetahuan Efek Konsumsi Kafein Dan Asupan Kafein Pada Mahasiswa. 11, 264–271. <http://ejournal3.undip.ac.id/index.php/jnc>
- Suryani, N., Prasetya, A., & Mulyono, B. (2020). *Kinetika dan Isoterm Adsorpsi Logam Berat pada Material Komposit Berbasis Zeolit*. Jurnal Kimia dan Lingkungan, 14(1), 55–63
- Susanti, H., Araaf, N. P. M., & Kusbandari, A. (2020). Perbandingan Metode Spektrofotometri UV Dan HPLC pada Penetapan Kadar Kafein dalam Kopi. Majalah Farmasetika., 4. <https://doi.org/10.24198/mfarmasetika.v4i0.25887>
- Syamsudin, F. I., Rahmawati, F., Indrawati, M., & Suryana, R. (2023). Kajian Pustaka Aplikasi Nanopartikel melalui Metode Sol - Gel sebagai Fotoanoda pada Dye Sensitized Solar. 8(2), 9-16
- Tran NH, Reinhard M, Gin KY (2018) Occurrence and fate of emerging contaminants in municipal wastewater treatment plants from different geographical regions-a review. Water Res 133:182–207. <https://doi.org/10.1016/j.watres.2017.12.029>
- Widiyastuti, W., Rachmawati, H., & Suherman, A. (2018). *Modification of Hydrotalcite Using PEG for Enhanced Adsorption Performance*. Indonesian Journal of Chemistry, 18(2), 233–241
- Wijayanti, I. E., & Kurniawati, E. A. (2019). Studi Kinetika Adsorpsi Isoterm Persamaan Langmuir dan Freundlich pada Abu Gosok sebagai Adsorben. EduChemia (Jurnal Kimia Dan Pendidikan), 4(2), 175. <https://doi.org/10.30870/educhemia.v4i2.6119>
- World Health Organization (WHO) and United Nations Children's Fund (UNICEF). (2019). Progress on Household Drinking Water, Sanitation and Hygiene 2000-2017: Special Focus on Inequalities. Geneva: WH O Press
- Yan, Y., Sun, K., Sun, Y., Zhang, Y., Guo, J., Deng, L., & Che, D. (2017). Adsorption and Agglomeration Characteristics of Ash Particles after Reducing Flue Gas Temperature below the Acid Dew Point. Energy Procedia, 142, 3301–3306. <https://doi.org/10.1016/j.egypro.2017.12.461>
- Yang, X., Wei, X., Yu, K., Wan, C., Wang, Y., Huang, S., Sun, Q., & Huang, J. (2022). Identification of myocardial fibrosis by ATR-FTIR spectroscopy combined with chemometrics. *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, 264, 12023 <https://doi.org/10.1016/j.saa.2021.120238>
- Zhou, J., Zhu, C., Zhou, Y., & et al. (2023). Composition and phase engineering of metal chalcogenides and phosphorous chalcogenides. *Nature Materials*, 22, 450–458. <https://doi.org/10.1038/s41563-022-01291-5>
- Zulichatun, S., Aris, W., Apriza, M., Yoga, A. P., Lutfi, N., & Novita, D. R. (2015). Analisis Luas Permukaan Zeolit Alam Termodifikasi dengan Metode BET Menggunakan *Surface Area Analyzer* (SAA). Pelatihan Instrumen, 2015, 1–10