

DAFTAR PUSTAKA

- Abadi, P.G. shekhi, Irani, M. and Rad, L.R., 2023, Mechanisms of the removal of the metal ions, dyes, and drugs from wastewaters by the electrospun nanofiber membranes, *J. Taiwan Inst. Chem. Eng.*, 143, 104625–104656.
- Ahammad, N.A., Ahmad, M.A., Hameed, B.H. and Mohd Din, A.T., 2023, A mini review of recent progress in the removal of emerging contaminants from pharmaceutical waste using various adsorbents, *Environ. Sci. Poll. Res.*, 30(60), 124459–124473.
- Ahmad, S., Zhu, X., Wei, X. and Zhang, S., 2021, Influence of process parameters on hydrothermal modification of soybean residue: Insight into the nutrient, solid biofuel, and thermal properties of hydrochars, *J. Environ. Manage.*, 283, 111981.
- Ahmed, M.J. and Hameed, B.H., 2019, Insights into the isotherm and kinetic models for the coadsorption of pharmaceuticals in the absence and presence of metal ions: A review, *J. Environ. Manage.*, 252, 109617–109629.
- Akbarnejad, S., Amooey, A.A. and Ghasemi, S., 2019, High effective adsorption of acid fuchsin dye using magnetic biodegradable polymer-based nanocomposite from aqueous solutions, *Microchem. J.*, 149, 103966–103977.
- Ali, N.A. and Hussein, E.A., 2019, Characterization of functional electrospun polymeric nanofiber membranes, *Int. J. Environ. Sci. Technol.*, 16(12), 8411–8422.
- Amin, N.A.A.M., Mokhter, M.A., Salamun, N., Mohamad, M.F. bin and Mahmood, W.M.A.W., 2023, Anti-fouling electrospun organic and inorganic nanofiber membranes for wastewater treatment, *South African J. Chem. Eng.*, 44, 302–317.
- Anonim, 2012, *U.S. EPA - Oxytetracycline: Human Health Risk Assessment - DP No. 381394 - Tersedia di https://www3.epa.gov/pesticides/chem_search/hhbp/D381394.pdf*, Washington, D.C.
- Anonim, 2020, *WHO GLASS - The burden of antimicrobial resistance (AMR) in Indonesia*.
- Anonim, 2021, *CDDEP - The State of the Worlds Antibiotics 2021 A Global Analysis of Antimicrobial Resistance and Its Drivers*.
- Bartoli, M., Troiano, M., Giudicianni, P., Amato, D., Giorcelli, M., Solimene, R. and Tagliaferro, A., 2022, Effect of heating rate and feedstock nature on electrical conductivity of biochar and biochar-based composites, *Appl. Energy Combust. Sci.*, 12, 100089–100099.

- Behroozi, A.H., Al-Shaeli, M. and Vatanpour, V., 2023, Fabrication and modification of nanofiltration membranes by solution electrospinning technique: A review of influential factors and applications in water treatment, *Desalination*, 558, 116638–116659.
- Benjelloun, M., Miyah, Y., Akdemir Evrendilek, G., Zerrouq, F. and Lairini, S., 2021, Recent Advances in Adsorption Kinetic Models: Their Application to Dye Types, *Arab. J. Chem.*, 14(4), 103031–103044.
- Bezerra, M.A., Santelli, R.E., Oliveira, E.P., Villar, L.S. and Escaleira, L.A., 2008, Response surface methodology (RSM) as a tool for optimization in analytical chemistry, *Talanta*, 76(5), 965–977.
- Cai, S., Zhang, Q., Wang, Z., Hua, S., Ding, D., Cai, T. and Zhang, R., 2021, Pyrrolic N-rich biochar without exogenous nitrogen doping as a functional material for bisphenol A removal: Performance and mechanism, *Appl. Catal. B*, 291, 120093.
- Chandra Deb, L., Mcgrath, B.M., Schlosser, L., Hewitt, A., Schweitzer, C., Rotar, J., Leedahl, N.D., Crosby, R. and Carson, P., 2022, Antibiotic Prescribing Practices for Upper Respiratory Tract Infections Among Primary Care Providers: A Descriptive Study, *Open Forum Infect. Dis.*, 9(7), 302.
- Chen, J., Sun, J., Luo, M., Li, Y., Wang, Z. and Wang, Y., 2022, As(III) oxidation and kinetic analysis by *Herminiimonas arsenicoxydans*-loaded electrospinning activated carbon fiber biofilms, *Chemosphere*, 308, 136479–136488.
- Chen, M., Jiang, J., Feng, S., Low, Z.X., Zhong, Z. and Xing, W., 2021, Graphene oxide functionalized polyvinylidene fluoride nanofibrous membranes for efficient particulate matter removal, *J. Membr. Sci.*, 635, 119463–117472.
- Colletti, A., Attrovio, A., Boffa, L., Mantegna, S. and Cravotto, G., 2020, Valorisation of by-products from soybean (*Glycine max* (L.) Merr.) processing, *Molecules*, 25, 2129.
- Dehghani, M.H., Ahmadi, S., Ghosh, S., Othmani, A., Osagie, C., Meskini, M., AlKafaas, S.S., Malloum, A., Khanday, W.A., Jacob, A.O., Gökkuş, Ö., Oroke, A., Martins Chineme, O., Karri, R.R. and Lima, E.C., 2023, Recent advances on sustainable adsorbents for the remediation of noxious pollutants from water and wastewater: A critical review, *Arab. J. Chem.*, 16(12), 105303.
- Erdogan, F.O., 2019, Freundlich, langmuir, temkin, dr and harkins-jura isotherm studies on the adsorption of CO₂ on various porous adsorbents, *Int. J. Chem. React. Eng.*, 17(5), 20180134–20180144.
- Ersan, M. and Dogan, H., 2023, Investigation of environmentally friendly adsorbent synthesis from eggshell by carbonization, immobilization, and radiation: Box-Benkhen Design and tetracyclin removal, *Groundw. Sustain. Dev.*, 20, 100858–100868.

- Fan, Y., Su, J., Xu, L., Liu, S., Hou, C., Liu, Y. and Cao, S., 2023, Removal of oxytetracycline from wastewater by biochar modified with biosynthesized iron oxide nanoparticles and carbon nanotubes: Modification performance and adsorption mechanism, *Environ. Res.*, 231, 116307–116319.
- Faraji, M., Saidi, M. and Abdouss, M., 2024, Novel activated biochar-enhanced superhydrophilic nanofibrous membrane for superior oil-in-water emulsion separation, *J. Membr. Sci.*, 700, 122675–122687.
- Fu, B., Ge, C., Yue, L., Luo, J., Feng, D., Deng, H. and Yu, H., 2016, Characterization of Biochar Derived from Pineapple Peel Waste and Its Application for Sorption of Oxytetracycline from Aqueous Solution, *BioResour.*, 11(4), 9017–9035.
- Gabhi, R., Tan, K., Feng, T., Kirk, D.W., Giorcelli, M., Tagliaferro, A. and Jia, C.Q., 2024, Intrinsic electrical conductivity of monolithic biochar, *Biomass Bioenergy*, 181, 107051–107060.
- Haleem, N., Khattak, A., Jamal, Y., Sajid, M., Shahzad, Z. and Raza, H., 2022, Development of poly vinyl alcohol (PVA) based biochar nanofibers for carbon dioxide (CO₂) adsorption, *Renew. Sust. Energ. Rev.*, 157, 112019–112026.
- Hidayati, N.V., Syakti, A.D., Asia, L., Lebarillier, S., Khabouchi, I., Widowati, I., Sabdono, A., Piram, A. and Doumenq, P., 2021, Emerging contaminants detected in aquaculture sites in Java, Indonesia, *Sci. Total Environ.*, 773, 145057.
- Hiew, B.Y.Z., Lee, L.Y., Lee, X.J., Thangalazhy-Gopakumar, S. and Gan, S., 2021, Utilisation of environmentally friendly okara-based biosorbent for cadmium(II) removal, *Environ. Sci. Pollut. Res.*, 28, 40608–40622.
- Hu, Q., Ma, S., He, Z., Liu, H. and Pei, X., 2024, A revisit on intraparticle diffusion models with analytical solutions: Underlying assumption, application scope and solving method, *J. Water Proc. Eng.*, 60, 105241.
- Janah, I.M., Roto, R., Konishi, K. and Siswanta, D., 2022, EDTA-capped silver nanoparticles as a probe for highly sensitive and selective colorimetric sensing of creatinine and optimization using response surface methodology-Box Behnken Design, *Talanta Open*, 6, 100170–100179.
- Jia, W., Pan, X., Song, J., Wang, J., Sun, W., Xin, Y., Yan, Q., Zhou, C., Zheng, H. and Liu, G., 2023, Adsorption Characteristics and Mechanisms of Oxytetracycline on Nano Biochar: Effects of Environmental Conditions and Particle Aggregation, *Water Air Soil Pollut.*, 234(10), 616–628.
- Klein, E.Y., Boeckel, T.P. Van, Martinez, E.M., Pant, S., Gandra, S., Levin, S.A., Goossens, H. and Laxminarayan, R., 2018, Global increase and geographic convergence in antibiotic consumption between 2000 and 2015, *Proceedings of the National Academy of Sciences of the United States of America*, 115(15), E3463–E3470.

- Konstantopoulos, G., Soulis, S., Dragatogiannis, D. and Charitidis, C., 2020, Introduction of a methodology to enhance the stabilization process of pan fibers by modeling and advanced characterization, *Materials*, 13, 2749.
- Liang, G., Wang, Z., Yang, X., Qin, T., Xie, X., Zhao, J. and Li, S., 2019, Efficient removal of oxytetracycline from aqueous solution using magnetic montmorillonite-biochar composite prepared by one step pyrolysis, *Sci. Total Environ.*, 695, 133800–133811.
- Li, J., Cherkasova, T., Nikolaevich, Y.A. and Yuan, P., 2024, Fabrication of electrospun cellulose/ball-milled bone char membranes for fast, efficient and selective sorption of aquatic U(VI), *Colloids Surf. A Physicochem. Eng. Asp.*, 680, 132646–132656.
- Limato, R., Lazarus, G., Dernison, P., Mudia, M., Alamanda, M., Nelwan, E.J., Sinto, R., Karuniawati, A., Rogier Van Doorn, H. and Hamers, R.L., 2022, Optimizing antibiotic use in Indonesia: A systematic review and evidence synthesis to inform opportunities for intervention, *The Lancet Regional Health – Southeast Asia*, 100013–100036.
- Li, Q., Zhao, S. and Wang, Y., 2021, Mechanism of oxytetracycline removal by coconut shell biochar loaded with nano-zero-valent iron, *Int. J. Environ. Res. Public Health*, 18(24), 13107–13123.
- Li, X.H., Yang, H.J., Ma, Y.X., Li, T.Z., Meng, W.L. and Zhong, X.M., 2023, A novel PAN/GO electrospun nanocomposite fibrous membranes with rich amino groups for highly efficient adsorption of Au(III), *Diam. Relat. Mater.*, 137, 110175–110188.
- Li, Z.J., Qi, W.N., Feng, Y., Liu, Y. wang, Ebrahim, S. and Long, J., 2019, Degradation mechanisms of oxytetracycline in the environment, *J. Integr. Agric.*, 18(9), 1953–1960.
- Luo, J., Li, X., Ge, C., Müller, K., Yu, H., Huang, P., Li, J., Tsang, D.C.W., Bolan, N.S., Rinklebe, J. and Wang, H., 2018, Sorption of norfloxacin, sulfamerazine and oxytetracycline by KOH-modified biochar under single and ternary systems, *Bioresour. Technol.*, 263, 385–392.
- Lu, T., Cui, J., Qu, Q., Wang, Y., Zhang, J., Xiong, R., Ma, W. and Huang, C., 2021, Multistructured Electrospun Nanofibers for Air Filtration: A Review, *ACS Appl. Mater. Interfaces*, 13(20), 23293–23313.
- Lu, T.H., Chen, C.Y., Wang, W.M. and Liao, C.M., 2021, A Risk-Based Approach for Managing Aquaculture Used Oxytetracycline-Induced TetR in Surface Water Across Taiwan Regions, *Front. Pharmacol.*, 12, 803499–803513.
- Mishra, S., Singh, A.K., Cheng, L., Hussain, A. and Maiti, A., 2023, Occurrence of antibiotics in wastewater: Potential ecological risk and removal through anaerobic–aerobic systems, *Environ. Res.*, 226, 115678–115692.

- Nan, W., Zhao, Y., Ding, Y., Shende, A.R., Fong, H. and Shende, R. V., 2017, Mechanically flexible electrospun carbon nanofiber mats derived from biochar and polyacrylonitrile, *Mater. Lett.*, 205, 206–210.
- Pereira, A.G.B., Rodrigues, F.H.A., Paulino, A.T., Martins, A.F. and Fajardo, A.R., 2021, Recent advances on composite hydrogels designed for the remediation of dye-contaminated water and wastewater: A review, *J. Clean. Prod.*, 284, 124703.
- Sani, M.N.H., Amin, M., Siddique, A.B., Nasif, S.O., Ghaley, B.B., Ge, L., Wang, F. and Yong, J.W.H., 2023, Waste-derived nanobiochar: A new avenue towards sustainable agriculture, environment, and circular bioeconomy, *Sci. Tot. Environ.*, 905, 166881–166898.
- Scaria, J., Gopinath, A., Ranjith, N., Ravindran, V., Ummar, S., Nidheesh, P. V. and Kumar, M.S., 2022, Carbonaceous materials as effective adsorbents and catalysts for the removal of emerging contaminants from water, *J. Clean. Prod.*, 350, 131319–131349.
- Schirra, A., Ali, A. Bin, Renz, F., Sindelar, R., Pedrazzi, S. and Allesina, G., 2022, Preliminary Investigation of Possible Biochar Use as Carbon Source in Polyacrylonitrile Electrospun Fiber Production, *Appl. Sci.*, 12(9), 4441–4455.
- Sha, T., Liu, J., Sun, M., Li, L., Bai, J., Hu, Z. and Zhou, M., 2019, Green and low-cost synthesis of nitrogen-doped graphene-like mesoporous nanosheets from the biomass waste of okara for the amperometric detection of vitamin C in real samples, *Talanta*, 200, 300–306.
- Shi, M., Ma, J., Yao, Z., Li, Z., Mi, H. and Xie, Y., 2019, Iron and nitrogen co-doped porous carbon derived from soybean dregs with enhanced catalytic performance for oxygen reduction, *J. Electroanal. Chem.*, 839, 141–148.
- Si, Y., Shi, S. and Hu, J., 2023, Applications of electrospinning in human health: From detection, protection, regulation to reconstruction, *Nano Today*, 48, 101723–101759.
- Song, J., Lu, L., Wang, J., Li, X., Li, J., Wang, Q., Du, H., Xin, S., Xu, L., Yan, Q., Zhou, C., Liu, G. and Xin, Y., 2023, Highly efficient nanocomposite of Y₂O₃@biochar for oxytetracycline removal from solution: Adsorption characteristics and mechanisms, *Bioresour. Technol.*, 385, 129380–129388.
- Sun, Y., Li, C., Zhang, S., Li, Q., Gholizadeh, M., Wang, Y., Hu, S., Xiang, J. and Hu, X., 2021, Pyrolysis of soybean residue: Understanding characteristics of the products, *Renew. Energy*, 174, 487–500.
- Taheran, M., Naghdi, M., Brar, S.K., Knystautas, E., Verma, M., Surampalli, R.Y. and Valero, J.R., 2016, Development of adsorptive membranes by confinement of activated biochar into electrospun nanofibers, *Beilstein J. Nanotechnol.*, 7, 1556–1563.

- Tang, W. jie, Zhang, J. xin, Wen, M. ling, Wei, Y., Tang, T. ting, Yang, T. tian, Bai, H. ting, Guo, C. qiong, Gao, X., Wang, Z. chen, Xu, L. dan, Liu, Y. and An, M. wen, 2023, Preparation of polyvinyl alcohol/chitosan nanofibrous films incorporating graphene oxide and lanthanum chloride by electrospinning method for potential photothermal and chemical synergistic antibacterial applications in wound dressings, *J. Mech. Behav. Biomed. Mater.*, 148, 106162–106175.
- Tomeczyk, A., Sokołowska, Z. and Boguta, P., 2020, Biochar physicochemical properties: pyrolysis temperature and feedstock kind effects, *Rev. Environ. Sci. Biotechnol.*, 19(1), 191–215.
- Vrchovecká, S., Asatiani, N., Antoš, V., Waclawek, S. and Hrabák, P., 2023, Study of Adsorption Efficiency of Lignite, Biochar, and Polymeric Nanofibers for Veterinary Drugs in WWTP Effluent Water, *Water Air Soil Pollut.*, 234(4), 268–281.
- Wang, J. and Guo, X., 2020, Adsorption kinetic models: Physical meanings, applications, and solving methods, *J. Hazard. Mater.*, 390, 122156.
- Wang, J. and Guo, X., 2022, Rethinking of the intraparticle diffusion adsorption kinetics model: Interpretation, solving methods and applications, *Chemosphere*, 309, 136732.
- Wang, S., Sun, W., Yang, D.S. and Yang, F., 2019, Conversion of soybean waste to sub-micron porous-hollow carbon spheres for supercapacitor via a reagent and template-free route, *Mater. Today Energy*, 13, 50–55.
- Wen, X., Lu, X., Xiang, K., Xiao, L., Liao, H., Chen, W., Zhou, W. and Chen, H., 2019, Nitrogen/sulfur co-doped ordered carbon nanoarrays for superior sulfur hosts in lithium-sulfur batteries, *J. Colloid Interface Sci.*, 554, 711–721.
- Werkneh, A.A. and Islam, M.A., 2023, Post-treatment disinfection technologies for sustainable removal of antibiotic residues and antimicrobial resistance bacteria from hospital wastewater, *Heliyon*, 9(4), e15360–e15375.
- Wu, D., Dai, S., Feng, H., Karunaratne, S.H.P.P., Yang, M. and Zhang, Y., 2024, Persistence and potential risks of tetracyclines and their transformation products in two typical different animal manure composting treatments, *Environ. Pollut.*, 341, 122904–122914.
- Wu, J., Weng, X., Owens, G. and Chen, Z., 2023, Enhanced activity of Fe/Mn nanoparticles using a response surface methodology and mechanism for removing oxytetracycline and copper ion, *Chemosphere*, 319, 138057–138067.
- Xue, J., Wu, T., Dai, Y. and Xia, Y., 2019, Electrospinning and electrospun nanofibers: Methods, materials, and applications, *Chem. Rev.*, 119, 5298–5415.

- Xu, L., Zhang, H., Xiong, P., Zhu, Q., Liao, C. and Jiang, G., 2021, Occurrence, fate, and risk assessment of typical tetracycline antibiotics in the aquatic environment: A review, *Sci. Tot. Environ.*, 753, 141975–141991.
- Xu, T., Li, X., Liang, Z., Amar, V.S., Huang, R., Shende, R. V. and Fong, H., 2020, Carbon Nanofibrous Sponge Made from Hydrothermally Generated Biochar and Electrospun Polymer Nanofibers, *Adv. Fiber Mater.*, 2(2), 74–84.
- Ying, Z., Zhang, T., Li, H. and Liu, X., 2023, Adsorptive removal of aflatoxin B1 from contaminated peanut oil via magnetic porous biochar from soybean dreg, *Food Chem.*, 409, 135321.
- Yue, J., Yu, J., Jiang, S. and Chen, Y., 2022, Biomass carbon materials with porous array structures derived from soybean dregs for effective electromagnetic wave absorption, *Diam. Relat. Mater.*, 126, 109054.
- Yue, T., Cao, X., Liu, Q., Bai, S., Zhang, F. and Liu, L., 2023, Enhancement on removal of oxytetracycline in aqueous solution by corn stover biochar: Comparison of KOH and KMnO4 modifications, *Chem. Eng. Res. Des.*, 190, 353–365.
- Zhang, C., Li, R., Ke, D., Suo, H., Wang, S., Ma, E., Chen, Y. and Liu, C., 2024, Intraparticle sorption and desorption of antibiotics, *J. Hazard. Mater.*, 465, 133311.
- Zhang, H., Song, X., Zhang, J., Liu, Y., Zhao, H., Hu, J. and Zhao, J., 2022, Performance and mechanism of sycamore flock based biochar in removing oxytetracycline hydrochloride, *Bioresour. Technol.*, 350, 126884–126892.
- Zhang, M., Meng, J., Liu, Q., Gu, S., Zhao, L., Dong, M., Zhang, J., Hou, H. and Guo, Z., 2019, Corn stover-derived biochar for efficient adsorption of oxytetracycline from wastewater, *J. Mater. Res.*, 34(17), 3050–3060.
- Zhang, X., Bhattacharya, T., Wang, C., Kumar, A. and Nidheesh, P.V., 2023, Straw-derived biochar for the removal of antibiotics from water: Adsorption and degradation mechanisms, recent advancements and challenges, *Environ. Res.*, 237, 116998.
- Zhang, Y., Lv, Z., Li, X., Zhao, K., Huang, S., Chen, Y., Fu, Y., Peng, C., Cao, T., Ke, Y. and Xia, X., 2023, Occurrence and risk assessment of antibiotics in feces of elderly individuals in Shenzhen, *Environ. Sci. Pollut. Res.*, 30(15), 44943–44951.
- Zheng, Y., Yu, C. and Fu, L., 2023, Biochar-based materials for electroanalytical applications: An overview, *Green Anal. Chem.*, 7, 100081–100094.
- Zhou, Y., Leong, S.Y. and Li, Q., 2023, Modified biochar for removal of antibiotics and antibiotic resistance genes in the aqueous environment: A review, *J. Water Process Eng.*, 55, 104222–104232.

- Zhou, Y., Ren, J., Xia, L., Zheng, Q., Liao, J., Long, E., Xie, F., Xu, C. and Lin, D., 2018, Waste soybean dreg-derived N/O co-doped hierarchical porous carbon for high performance supercapacitor, *Electrochim. Acta*, 284, 336–345.
- Zhu, H., An, Q., Syafika Mohd Nasir, A., Babin, A., Lucero Saucedo, S., Vallenas, A., Li, L., Baldwin, S.A., Lau, A. and Bi, X., 2023, Emerging applications of biochar: A review on techno-environmental-economic aspects, *Bioresour. Technol.*, 388, 129745–129759.