

## DAFTAR PUSTAKA

- Abdelghany, A. M., Menazea, A. A., dan Ismail, A. M., 2019. Synthesis, characterization and antimicrobial activity of Chitosan / Polyvinyl Alcohol blend doped with Hibiscus Sabdariffa L . extract, *Journal of Molecular Structure*, 1197, 603–609, <https://doi.org/10.1016/j.molstruc.2019.07.089>
- Abouricha, S., Aziam, H., Noukrati, H., Sel, O., dan Saadoune, I., 2024, *Biopolymers-Based Proton Exchange Membranes For Fuel Cell Applications : A Comprehensive Review*. 202300648, <https://doi.org/10.1002/celc.202300648>
- Al-gatea, H. H., dan Alshamkhawy, S. A. A., 2025, *Photocatalytic Degradation and Adsorption Crystal Violet Dye Using Capparis Spinosa Plant as Catalysts*, 7721, 40–51, <https://doi.org/10.36346/sarjmb.2025.v06i03.001>
- Ali, I. O., Nady, H., Mohamed, M. I., dan Salama, T. M., 2024, Fabrication and characterization of ZnO and Ag / ZnO nanoparticles for efficient degradation of crystal violet dye in aqueous solution, *Journal of the Indian Chemical Society*, 101(12), 101480, <https://doi.org/10.1016/j.jics.2024.101480>
- Alzahrani, E. A., Nabi, A., Kamli, M. R., Albukhari, S. M., Althabaiti, S. A., Alharbi, S. A., Khan, I., dan Malik, M. A., 2023, *Facile Green Synthesis of ZnO NPs and Plasmonic Ag-Supported ZnO Nanocomposite for Photocatalytic Degradation of Methylene Blue*, 1–25, <https://doi.org/10.3390/w15030384>
- Aoudjit, L., Nebbat, E. L. A., Zioui, D., Développement, U. De, Centre, U., Développement, D., dan Ismail, B., 2023, *Chitosan / Zno Nanocomposite Membranes For Removal Of Paracetamol From Water*, *Cellulose Chemistry and Technology*, 57, 477–484, <https://doi.org/10.35812/CelluloseChemTechnol.2023.57.46>
- Azmana, M., Mahmood, S., Rebhi, A., Rahman, A., Azmir, M., Arifin, B., dan Ahmed, S., 2021, International Journal of Biological Macromolecules A review on chitosan and chitosan-based bionanocomposites : Promising material for combatting global issues and its applications, *International Journal of Biological Macromolecules*, 185(June), 832–848, <https://doi.org/10.1016/j.ijbiomac.2021.07.023>
- Chelli, V. R., dan Golder, A. K., 2018, Chemosphere Ag-doping on ZnO support

mediated by bio-analytes rich in ascorbic acid for photocatalytic degradation of dipyrone drug, *Chemosphere*, 208, 149–158, <https://doi.org/10.1016/j.chemosphere.2018.05.158>

Chen, C., Guo, Y., Long, L., Chen, K., Hu, X., dan Xue, Y., 2020. *Biodegradable chitosan-ethylene glycol hydrogel effectively adsorbs nitrate in water*, *Environmental Science and Pollution Research*, <https://doi.org/10.1007/s11356-020-09438-0>

Deng, Z., 2022. *Membrane Separation Technology : A n Overview*, 12(1000283), 1000283, <https://doi.org/10.35248/2155-9589.22.12.283>

Dhawale, S. K., Sarvalkar, P. D., Shinde, C. S., Prasad, N. R., Garadkar, K. M., Sharma, K. K. K., dan Ramteke, A. A., 2025, *Studies on Photocatalytic and Antioxidant Efficacy of Ag-Embedded ZnO Nanocomposites*, <https://doi.org/10.1021/acsomega.4c08896>

Długosz, O., dan Banach, M., 2021, Continuous synthesis of photocatalytic nanoparticles of pure ZnO and ZnO modified with metal nanoparticles, *Journal of Nanostructure in Chemistry*, 11(4), 601–617, <https://doi.org/10.1007/s40097-021-00387-9>

Dmitrieva, N. G., Bocharnikova, E. N., & Ezhov, D. M., 2022, Induced absorption spectra of a crystal violet dye. *Russian Physics Journal*, 64(11), 2089–2095, <https://doi.org/10.1007/s11182-022-02560-1>

Eskani, I. N., Haerudin, A., Setiawan, J., Lestari, D. W., dan Astuti, W., 2019, *Batik Fungsional Sebagai Salah Satu Strategi Pengembangan Industri Batik Dalam Memasuki Era Industri 4.0 Functional Batik As One Of The Batik Industries Development Strategy In Entering The 4 . 0 Industrial Era*, 1–12

Ezugbe, E. O., dan Rathilal, S., 2020, *Membrane Technologies in Wastewater Treatment: A Review*, *Membranes*, 10(5), 89, <https://doi.org/10.3390/membranes10050089>

Fathanah, U., dan Meilina, H., 2021, *Karakterisasi dan Kinerja Membran Polyethersulfone Termodifikasi Aditif Anorganik secara Blending Polimer*, VI(4), 2407–2414, <https://doi.org/10.32672/jse.v6i4.3345>

- Faturachman, G. F., Ramanda, A. A., Maharani, S., Latif, A., Arthurito, G., Belo, G., Grafi, S., dan Ayubi, A., 2025, *Application of Fourier Transform Infrared Spectroscopy (FTIR) for Quantitative Analysis of Pharmaceutical Compounds*. 5(1), 27–33 <https://doi.org/10.37311/ijpe.v5i1.23309>
- Filimon, A., Dobos, A. M., Onofrei, M. D., dan Serbezeanu, D., 2025, *Polyvinyl Alcohol-Based Membranes : A Review of Research Progress on Design and Predictive Modeling of Properties for Targeted Application*, *Polymers*, 17(8), 1016, <https://doi.org/10.3390/polym17081016>
- Fischer, K., Latif, A. A., Griebel, J., Prager, A., Shayestehpour, O., Zahn, S., dan Schulze, A., 2024, *Immobilization of Bi<sub>2</sub>WO<sub>6</sub> on Polymer Membranes for Photocatalytic Removal of Micropollutants from Water – A Stable and Visible Light Active Alternative*, 2300198, 1–11, <https://doi.org/10.1002/gch2.202300198>
- Gholizadeh, Z., Aliannezhadi, M., dan Ghominejad, M., 2023, High specific surface area  $\gamma$  - Al<sub>2</sub>O<sub>3</sub> nanoparticles synthesized by facile and low - cost co - precipitation method, *Scientific Reports*, 1–14, <https://doi.org/10.1038/s41598-023-33266-0>
- Ghosh, S., dan Nandi, S., 2024, *A Comprehensive Review on UV-Visible Spectroscopy and Its application*, 12(1), 1501–1507
- Gomez, E. E. R., dan Hernandez, H. M., 2023, *Obtaining Electrospun Membranes of Chitosan / PVA and TiO<sub>2</sub> as a Solid Polymer Electrolyte with Potential Application in Ion Exchange Membranes*, *Membranes*, 13(11), 862. <https://doi.org/10.3390/membranes13110862>
- Grzybek, P., Jakubski, Ł., dan Dudek, G., 2022, *Neat Chitosan Porous Materials : A Review of Preparation , Structure Characterization and Application Review Neat Chitosan Porous Materials: A Review of Preparation, Structure Characterization and Application*, *International Journal of Molecular Sciences*, 23(17), 9932, <https://doi.org/10.3390/ijms23179932>
- Gupta, P., Kaushik, A., Nagpal, G., Diantoro, M., Mohamad, F., Islam, F., dan Singh, P. K., 2025, Sorption isotherms and kinetics of Crystal Violet dye uptake from aqueous solution by using polyaniline nanocomposite as adsorbent, *Chemical Physics Impact*, 10(September 2024), 100834, <https://doi.org/10.1016/j.chphi.2025.100834>

- Habiba, U., Afifi, A. M., Ang, B. C., dan Talebian, S., 2016, *Influence of Hydrolysis on Electrospinnability of Chitosan / Polyvinyl Alcohol Blends Solution and Fiber Diameter Distribution*. 45(1), 29–34
- Hevira, L., Ighalo, J. O., dan Sondari, D., 2024, Chitosan-based polysaccharides for effective synthetic dye adsorption, *Journal of Molecular Liquids*, 393(August 2023), 123604, <https://doi.org/10.1016/j.molliq.2023.123604>
- Hir, Z. A. M., Mokhtar, H., Rafaie, H. A., Daud, S., Shohaimi, N. A. M., & Alam, N. M. F. H. N. B. (2024). *Efficient photodegradation of paracetamol by TiO<sub>2</sub>/ZnO photocatalyst and prediction via fuzzy inference system*. *Iranian Journal of Catalysis*, 14(2), 142413. <https://doi.org/10.57647/j.ijc.2024.1402.13>
- Hussain, A., Fiaz, S., Almohammed, A., dan Waqar, A., 2024, *Optimizing photocatalytic performance with Ag-doped ZnO nanoparticles : Synthesis and characterization*, 10(July), <https://doi.org/10.1016/j.heliyon.2024.e35725>
- Ikhsan, T. N., Khabibi, dan Lusiana, R. A., 2024, *Sintesis Membran Kitosan Tertaut Silang Tripolifosfat dengan Paduan Polivinil Alkohol untuk Permeasi Kreatinin*, 4(1)
- Irene, T. M., dan Rathika, A., 2022, *Synthesis Of Silver (Ag) Doped Zinc Oxide (Zno) Nanoparticles As Efficient Photocatalytic Activity For Degradation Methylene Blue Dye*, 13(2), 129–135, <https://doi.org/10.55218/JASR.202213217>
- Ivanova, D., Tzvetkov, G., dan Kaneva, N., 2023, *Degradation of Paracetamol in Distilled and Drinking Water via Ag/ZnO Photocatalysis under UV and Natural Sunlight*, *Water*, 15(20), 3549, <https://doi.org/10.3390/w15203549>
- Khamis, F., Hegab, H. M., Banat, F., Arafat, H. A., dan Hasan, S. W., 2024, Chemosphere Comprehensive review on pH and temperature-responsive polymeric adsorbents: Mechanisms, equilibrium, kinetics, and thermodynamics of adsorption processes for heavy metals and organic dyes, *Chemosphere*, 349(September 2023), 140801. <https://doi.org/10.1016/j.chemosphere.2023.140801>
- Khulbe, K. C., dan Matsuura, T., 2018, Removal of heavy metals and pollutants by membrane adsorption techniques, *Applied Water Science*, 8(1), 1–30

<https://doi.org/10.1007/s13201-018-0661-6>

- Kishore, M., Ali, S., Hussein, M., Abdoon, F. M., Naga, G., Bindu, H., Abdullah, A., Saxena, K. K., R, G. R., Kumar, A., dan Srinivas, T., 2025, Chitosan – PVA composite reinforced with Cu-decorated ZnO nanoparticles for photocatalytic dye degradation, *Chemical Physics Impact*, 11(August), 100953, <https://doi.org/10.1016/j.chphi.2025.100953>
- Kumar, S., Arora, A., Mathur, D., Chaudhary, A., Pant, V., Guchhait, S., dan Singh, B. K., 2025, International Journal of Biological Macromolecules A review on chitosan and chitosan-based bionanocomposites: Promising biological macromolecules for sustainable corrosion inhibition, *International Journal of Biological Macromolecules*, 301(January), 14039, <https://doi.org/10.1016/j.ijbiomac.2025.140392>
- Kumawat, A., Chhichholiya, S., Sharma, M. D., Kumari, P., Meena, R. K., dan Fageria, P., 2026, Enhanced visible-light photocatalysis by Au and Ag decorated ZnO for the simultaneous degradation of tetracycline and methylene blue. 1686–1711, <https://doi.org/10.1039/d5na00878f>
- Landi, S., Segundo, I. R., Freitas, E., Vasilevskiy, M., Carneiro, J., dan Tavares, C. J., 2022, Use and misuse of the Kubelka-Munk function to obtain the band gap energy from diffuse reflectance measurements, 341(October 2021), 1–7, <https://doi.org/10.1016/j.ssc.2021.114573>
- Li, Z., Sun, Y., Ge, S., Zhu, F., Yin, F., Gu, L., Yang, F., Hu, P., Chen, G., Wang, K., dan Volinsky, A. A., 2023, An Overview of Synthesis and Structural Regulation of Magnetic Nanomaterials Prepared by Chemical Coprecipitation, *Metals*, 13(1), 152, <https://doi.org/10.3390/met13010152>
- Liang, S., Li, S., Shen, M., zheng, H., Sun, H., dan Wang, G., 2024, Ag-Loaded ZnO Nanocomposite Films as Photocatalysts for the Degradation of Pigments under Visible Light, *ACS Applied Nano Materials*, 7, <https://doi.org/10.1021/acsanm.4c00185>
- Liu, H., Gong, C., Wang, J., Liu, X., Liu, H., Cheng, F., Wang, G., Zheng, G., Qin, C., dan Wen, S., 2016, Chitosan / silica coated carbon nanotubes composite proton exchange membranes for fuel cell applications, 136, 1379–1385. <https://doi.org/10.1016/j.carbpol.2015.09.085>

- Lusiana, R. A., Dia, V., Sangkota, A., Andre, N., Gunawan, G., Ricky, A., Juari, S., Siswanta, D., Mudasir, M., Nidzhom, M., Abidin, Z., Mansur, S., Ha, M., dan Othman, D., 2020, *Permeability improvement of polyethersulfone-poliethylene glycol ( PEG-PES ) flat sheet type membranes by tripolyphosphate-crosslinked chitosan ( TPP-CS ) coating*, 152, 633–644. <https://doi.org/10.1016/j.ijbiomac.2020.02.290>
- Ma, R., Li, J., Zeng, P., Duan, L., Dong, J., Ma, Y., dan Yang, L., 2024, *The Application of Membrane Separation Technology in the Pharmaceutical Industry*. 1–13, <https://doi.org/10.3390/membranes14010024>
- Mao, H., Wei, C., Gong, Y., Wang, S., dan Ding, W., 2019, *Mechanical and Water-Resistant Properties of Eco-Friendly Chitosan Membrane Reinforced with Cellulose Nanocrystals*, <https://doi.org/10.3390/polym11010166>
- Mashuri, S. I. S., Ibrahim, M. L., Kasim, M. F., Mastuli, M. S., Rashid, U., Abdullah, A. H., Islam, A., Mijan, N. A., Tan, Y. H., Mansir, N., Mohd Kaus, N. H., & Taufiq-Yap, Y. H., 2020, *Photocatalysis for Organic Wastewater Treatment: From the Basis to Current Challenges for Society*, Catalysts, 10(11), 1260, <https://doi.org/10.3390/catal10111260>
- Mei, Y., Runjun, S., Yan, F., Honghong, W., Hao, D., dan Chengkun, L., 2019, *Preparation, characterization and kinetics study of chitosan / PVA electrospun nanofiber membranes for the adsorption of dye from water*
- Mettler Toledo Group. (2025). *UV/Vis spectrophotometry: Fundamentals and applications*.
- Mi, Y., Li, H., Zhang, Y., Du, N., dan Hou, W., 2018, *Synthesis and photocatalytic activity of BiOBr nanosheets with tunable crystal facets and size*, <https://doi.org/10.1039/C8CY00143J>
- Mohamed, H., Ali, H., dan Hashem, H. M., 2025, Economic and recyclable sprayed ZnO / CuO / Cu<sub>5</sub>Zn<sub>8</sub> nanocomposite thin film for photocatalytic degradation of crystal violet dye, *Journal of Water Process Engineering*, 71(February), 107245, <https://doi.org/10.1016/j.jwpe.2025.107245>
- Mostafa, A. M., dan Alashkar, E. A., 2023, ZnO / Ag multilayer for enhancing the catalytic activity against 4-nitrophenol, *Journal of Materials Science: Materials in Electronics*, 34(4), 1–9. <https://doi.org/10.1007/s10854-022-09631-6>

- Munoz-Leon, M. L., Zubietta-otero, L. F., Coral, D. F., Villaquiran-raigoza, C. F., dan Rodriguez-garc, M. E., 2025, *Assessing the Effectiveness of the Coprecipitation Method in Synthesizing Magnetic Nanocomposites Based on Iron Oxides Coated with Hydroxyapatite*, <https://doi.org/10.1021/acsomega.4c05427>
- Nagaraju, G., Prashanth, S. A., Shastri, M., dan Yathish, K. V., 2017, *Electrochemical heavy metal detection , photocatalytic , photoluminescence , biodiesel production and antibacterial activities of Ag – ZnO nanomaterial*, 94, 54–63.
- Nathan, K. G., dan Genasan, K., 2023, *Polyvinyl Alcohol-Chitosan Scaffold for Tissue Engineering and Regenerative Medicine Application : A Review*. 1–18, <https://doi.org/10.3390/md21050304>
- Nedelkovski, V., Radovanovic, M., dan Antonijevic, M., 2025, *Advances in Photocatalytic Degradation of Crystal Violet Using ZnO-Based Nanomaterials and Optimization Possibilities : A Review*. 1–41
- Oktor, K., Hasirci, G., dan Hilmioglu, N., 2025, Journal of the Indian Chemical Society Preparation and characterization of renewable biopolymer based alginate adsorbent for removing of crystal violet dye from water. *Journal of the Indian Chemical Society*, 102(7), 101766, <https://doi.org/10.1016/j.jics.2025.101766>
- Oreofe, T. A., Inyinbor, A. A., Bello, O. S., dan Ogunleye, O. O., 2024, Adsorption Isotherm, Kinetics and Thermodynamics studies on Chloroquine sequestration using coconut shell activated carbon. *International Conference on Science, Engineering and Business for Driving Sustainable Development Goals (SEB4SDG)*, 1–6, <https://doi.org/10.1109/SEB4SDG60871.2024.10629925>
- Palacio, D. A., Palencia, M., Mel, M. F., dan Rivas, B. L., 2023, *Bio-Based Polymeric Membranes : Development and Environmental Applications*
- Paquini, L. D., Henrique, P., Quintela, L., Paula, L., Profeti, R., dan Guimara, D., 2025, *Insights into Kinetics and Thermodynamics for Adsorption Methylene Blue Using Ecofriendly Zeolites Materials*, <https://doi.org/10.1021/acsomega.4c11718>

- Pathak, J. S., dan Saxena, A. K., 2024, *Significance of Using Scanning Electron Microscopy with Energy Dispersive X-ray Spectrometry ( SEM-EDX ) for Analysis of Evidence Material in Forensic Sciences*, 8(2), 1–11, <https://doi.org/10.9734/AJR2P/2024/v8i2159>
- Permana, D., Ilimu, E., dan Kadidae, L. O., 2020, *Synthesis and Characterization of Chitosan-Polyvinyl Alcohol-  $Fe_2O_3$  Composite Membrane for DMFC Application* *Synthesis and Characterization of Chitosan-Polyvinyl Alcohol-  $Fe_2O_3$  Composite*, 24(1), <https://doi.org/10.7454/mss.v24i1.11723>
- Pham, T. T. H., Vu, X. H., Dien, N. D., Trang, T. T., Chi, T. T. K., Phuong, P. H., dan Nghia, N. T., 2022, RSC Advances Ag nanoparticles on ZnO nanoplates as a hybrid SERS-active substrate for trace detection of, *RSC Advances*, 12, 7850–7863, <https://doi.org/10.1039/D2RA00620K>
- Pierre, G., Dubessay, P., dan Dols-lafargue, M., 2019, *Modification of Chitosan for the Generation of Functional Derivatives*, <https://doi.org/10.3390/app9071321>
- Pratiwi, R. D., Muttaqien, S. El, Gustini, N., Difa, N. S., Syahputra, G., dan Rosyidah, A., 2023, *Eco-friendly synthesis of chitosan and its medical application : from chitin extraction to nanoparticle preparation*, 11(4), 435–455
- Priyadarshi, R., dan Rhim, J., 2020, Chitosan-based biodegradable functional films for food packaging applications, *Innovative Food Science and Emerging Technologies*, 62(March), 102346, <https://doi.org/10.1016/j.ifset.2020.102346>
- Prokhorov, E., Luna-Barcenas, G., Limon, J. M. Y., Sanchez, A. G., dan Kovalenko, Y., 2020 *Chitosan-ZnO Nanocomposites Assessed by*, 1–14, <https://doi.org/10.3390/polym12091991>
- Rafique, S., Kasi, A. K., dan Kasi, J. K., 2020, *Fabrication of silver-doped zinc oxide nanorods piezoelectric nanogenerator on cotton fabric to utilize and optimize the charging system*, 10, 1–12, <https://doi.org/10.1177/1847980419895741>
- Ramadhani, A., Sanjaya, H., Nasra, E., dan Amelia, F., 2026, *Photodegradation of*

*Crystal Violet Dyes Using Fe<sub>2</sub>O<sub>3</sub>/CuO with the Addition of MEA Additive*, 12(1), 44–52

Rigved, N., dan Jatin, P., 2019, *Polyvinyl Alcohol : A Comprehensive Study*, 3(4), 34–44

Sadoq, M., Atlas, H., Imame, S., Kali, A., Amar, A., Loulidi, I., Jabri, M., Sadoq, B., Ouchabi, M., Sannasi, P., dan Boukhelifi, F., 2024, Elimination of crystal violet from aqueous solution by adsorption on naturel polysaccharide : Kinetic, isotherm, thermodynamic studies and mechanism analysis, *Arabian Journal of Chemistry*, 17(1), 105453, <https://doi.org/10.1016/j.arabjc.2023.105453>

Safitri, G. A., dan Santoso, E., 2016, *Perbandingan Variasi Komposisi PVA/Kitosan terhadap Perilaku Membran Komposit PVA/Kitosan/Grafin Oksida yang Terikat Silang Trisodium Sitrat*, 5(1), 8–12

Sahu, S., dan Tiwari, S., 2023, Chapter 22 - Adsorption at high temperature and extreme condition. In C. Verma, J. Aslam, dan M. E. B. T.-A. through A. N. M. Khan (Ed.), *Micro and Nano Technologies* (hal. 483–503), Elsevier, <https://doi.org/https://doi.org/10.1016/B978-0-443-18456-7.00022-5>

Salman, S. A., Bakr, N. A., dan Homad, H. T., 2018, *Journal of Chemical, Biological and Physical Sciences DSC and TGA Properties of PVA Films Filled with Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>.5H<sub>2</sub>O Salt*, 8(2), 2–12, <https://doi.org/10.24214/jcbps.C.8.2.00111>

Scardi, P., D’Incau, M., Malagutti, M. A., Terban, M. W., Hinrichsen, B., dan Fitch, A. N., 2025, *A reference material for X-ray diffraction line*, 1764–1777, <https://doi.org/10.1107/S1600576725006946>

Shaban, M., Morsy, A., Mahmoud, A. S., dan Hamid, H. A., 2024 *Membrane Separation Processes: Principles, Structures, Materials, and Future Prospects, In Advances in Desalination Insights, IntechOpen*. <https://doi.org/10.5772/intechopen.1006562>

Siddique, 2024 *Exploring Functional Groups and Molecular Structures : A Comprehensive Analysis using FTIR Spectroscopy*, 9(2), 70–76

- Silitonga, R. S., Widiastuti, N., Jaafar, J., Ismail, A. F., Nidzhom, M., Abidin, Z., Azelee, I. W., dan Naidu, M., 2018, *The Modification of PVDF Membrane via Crosslinking with Chitosan and Glutaraldehyde as the Crosslinking Agent*, 18(1), 1–6, <https://doi.org/10.22146/ijc.25127>
- Simedru, D., dan Becze, A., 2022 *Scanning Electron Microscopy and Energy Dispersive X-ray Spectrometry (SEM/EDX) - a semiquantitative eco-friendly method for identifying the metals in e-waste multi circuits boards*, 97–103,
- Sirajudheen, P., Chettithodi, N., dan Vigneshwaran, S., 2021, Applications of chitin and chitosan based biomaterials for the adsorptive removal of textile dyes from water — A comprehensive review, *Carbohydrate Polymers*, 273(August), 118604. <https://doi.org/10.1016/j.carbpol.2021.118604>
- Sisay, E. J., Al-tayawi, A. N., Zsuzsanna, L., dan Kert, S., 2023, *Recent Advances in Organic Fouling Control and Mitigation Strategies in Membrane Separation Processes : A Review*
- Siswanta, D. W. I., dan Santosa, S. R. I. J., 2017, *Chitosan-Tripoly Phosphate (CS-TPP) Synthesis Through Cross-linking Process : The Effect of Concentration Towards Membrane Mechanical Characteristic and Urea Permeation*, *Oriental Journal of Chemistry*, 33(6), 2913–2919, <https://doi.org/10.13005/ojc/330626>
- Spicher, M. T., Schwaminger, P., Peralta, M., Mikacevic, G., dan Von, D., 2024, *Pilot-scale co-precipitation synthesis of a novel active ingredient made of ultrasmall iron (oxyhydr) oxide nanoparticles for the treatment of hyperphosphatemia*, 16117–16127, <https://doi.org/10.1039/d4ra02719a>
- Suryandari, E. T., 2019, *Sintesis membran komposit pvdf-zeolit untuk penghilangan metilen biru*, 6(2), 58–66
- Sutharsan, M., Murugan, K. S., dan Narayanan, K., 2025, *Chitosan/Polyvinyl Alcohol/g-C<sub>3</sub>N<sub>4</sub> Nanocomposite Film : An Efficient Visible Light-Responsive Photocatalyst and Antimicrobial Agent*, 1–18
- Tian, Y., Wu, K., Lin, S., Shi, M., Liu, Y., Su, X., dan Islam, R., 2024, *Biodegradation and Decolorization of Crystal Violet Dye by Cocultivation with Fungi and Bacteria*, <https://doi.org/10.1021/acsomega.3c06978>

- Tran, H. N., 2022, *Differences between Chemical Reaction Kinetics and Adsorption Kinetics : Fundamentals and Discussion*, 70, 33–47
- Ulbricht, M., 2006, *Advanced functional polymer membranes*, 47(7), 2217–2262, <https://doi.org/10.1016/j.polymer.2006.01.084>
- Vasquez, N. C., Mehling, S., Cavero, A., dan Schnabel, T., 2024, *Visible Light-Active Copper Cobaltite Supported Film for Hexavalent Chromium Photocatalytic Reduction*, 202404596, 1–9, <https://doi.org/10.1002/slct.202404596>
- Vieira, F., Souza, I., Falco, A. De, Marques, B., Baffa, O., Diego, C., Lima, D. A., Isabely, L., Sinimbu, M., De, P., Luz-lima, C., Damasceno, F., dan Araujo, F., 2024, *Heliyon* The effect of temperature on the synthesis of magnetite nanoparticles by the coprecipitation method, *Heliyon*, 10(4), e25781, <https://doi.org/10.1016/j.heliyon.2024.e25781>
- Wagh, S. S., Kadam, V. S., Jagtap, C. V, Salunkhe, D. B., Patil, R. S., Pathan, H. M., dan Patole, S. P, 2023, *Comparative Studies on Synthesis, Characterization and Photocatalytic Activity of Ag Doped ZnO Nanoparticles*, <https://doi.org/10.1021/acsomega.2c07499>
- Wang, Y., dan Wang, R., 2019, Chapter 1 - Reverse Osmosis Membrane Separation Technology, In *Membrane Separation Principles and Applications*, Elsevier Inc, <https://doi.org/10.1016/B978-0-12-812815-2.00001-6>
- Wu, H., dan Stacey, D., 2021, *with Temperature-Controlled Stages Makes Phase Identification Faster than Ever*, <https://doi.org/10.1017/S1551929521001358>
- Yasir, M., dan Dadi, M., 2022, *Spectroscopy and Spectrophotometry: Principles and Applications for Colorimetric and Related Other Analysis* (A. K. Samanta (ed.)), IntechOpen, <https://doi.org/10.5772/intechopen.101106>
- Zebarjad, S. M., Niknam, Z., dan Janghorban, K., 2025, Results in Chemistry Investigation of properties of polyvinyl alcohol /chitosan/carbon nanotubes composite produced by electrospinning method, *Results in Chemistry*, 18(August), 102805, <https://doi.org/10.1016/j.rechem.2025.102805>
- Zhang, K., Feng, W., dan Jin, C., 2020, MethodsX Protocol efficiently measuring

the swelling rate of hydrogels, *MethodsX*, 7(September 2019), 100779,  
<https://doi.org/10.1016/j.mex.2019.100779>