

DAFTAR PUSTAKA

- Abriyani, E., Khoirun Nissa, A., Nurcahyani, I., Haniatin, K., & Andriyani, N., 2024, Analisis Hasil Penentuan Struktur Kimia Senyawa Asam Askorbat Dengan Metode Spektrofotometri UV-Vis Sebagai Bahan Ajar Kimia Analitik. *Jurnal Ilmiah Wahana Pendidikan*, 10(11), 134–138. <https://doi.org/10.5281/zenodo.12563929>
- Agustin, L., & Agustina, R., 2020, Komparasi Unjuk Kerja Peralatan Spektrofotometer UV-VIS Perkin Elmer Lambda 3 Dengan Hitachi U-2900 Pada Penentuan Total Phenolic Content. *Jurnal Teknik: Ilmu Dan Aplikasi*, 08(1), 42–46.
- Ahmed, T., Ammar, M., Saleem, A., Zhang, H. L., & Xu, H. Bin., 2020, Z -scheme 2D-m-BiVO₄ networks decorated by a g-CN nanosheet heterostructured photocatalyst with an excellent response to visible light. *RSC Advances*, 10(6), 3192–3202. <https://doi.org/10.1039/c9ra09473c>
- Akarsu, M., Asiltürk, M., Sayilkan, F., Kiraz, N., Arpaç, E., & Sayilkan, H., 2006, A novel approach to the hydrothermal synthesis of anatase titania nanoparticles and the photocatalytic degradation of Rhodamine B. *Turkish Journal of Chemistry*, 30(3), 333–343.
- Ali, A. Z., Mohapatra, S., van der Hoek, J. P., & Spanjers, H., 2025, BiVO₄-based photoanodes for the photoelectrocatalytic removal of trace organic pollutants from water: A mini review on recent developments. *Current Opinion in Environmental Science and Health*, 45, 100615. <https://doi.org/10.1016/j.coesh.2025.100615>
- Atmadani, A. A., & Hidayah, E. N., 2022, Kinetika Reaksi Resin Immobilized Photocatalyst Technology (RIPT) TiO₂ Sebagai Bahan Alternatif Pengolahan Limbah Cair Tahu. *INSOLOGI: Jurnal Sains Dan Teknologi*, 1(5), 584–594. <https://doi.org/10.55123/insologi.v1i5.999>
- Bhatnagar, A., Hogland, W., Marques, M., & Sillanpää, M., 2013, An overview of the modification methods of activated carbon for its water treatment applications. *Chemical Engineering Journal*, 219, 499–511. <https://doi.org/10.1016/j.cej.2012.12.038>
- Brack, P., Sagu, J. S., Peiris, T. A. N., McInnes, A., Senili, M., Wijayantha, K. G. U., Marken, F., & Selli, E., 2015, Aerosol-assisted CVD of bismuth vanadate thin films and their photoelectrochemical properties. *Chemical Vapor Deposition*, 21(1–3), 41–45. <https://doi.org/10.1002/cvde.201407142>
- Chandra, D. A. P., 2012, Degradasi Fotokatalitik Zat Warna Tekstil Rhodamin B Menggunakan Zeolit Terimpregnasi TiO₂. *ADLN Perpustakaan Universitas Airlangga*, 207.
- Colmenares, J. C., Kuna, E., & Lisowski, P., 2016, Synthesis of Photoactive Materials by Sonication: Application in Photocatalysis and Solar Cells. *Topics in Current Chemistry*, 374(5), 1–21. <https://doi.org/10.1007/s41061-016->

0062-y

- da Silva, M. R., Scalvi, L. V. A., Neto, V. S. L., & Dall'Antonia, L. H., 2016, Dip-coating deposition of resistive BiVO₄ thin film and evaluation of their photoelectrochemical parameters under distinct sources illumination. *Journal of Solid State Electrochemistry*, 20(6), 1527–1538. <https://doi.org/10.1007/s10008-016-3166-y>
- Dadi, M., & Yasir, M., 2022, Spectroscopy and Spectrophotometry: Principles and Applications for Colorimetric and Related Other Analysis. *Colorimetry*, 1–22. <https://doi.org/10.5772/intechopen.101106>
- Della Rosa, S., Defi Okzelia, S., Studi Farmasi, P., & Tinggi Ilmu Kesehatan Bani Saleh, S., 2023, Analisis Zat Warna Rhodamin B Dalam Lipstik Yang Beredar Di Pasar Setu Bekasi. *Journal Education and Chemistry*, 5(1), 49–56.
- Frederichi, D., Scaliante, M. H. N. O., & Bergamasco, R., 2021, Structured photocatalytic systems: photocatalytic coatings on low-cost structures for treatment of water contaminated with micropollutants—a short review. *Environmental Science and Pollution Research*, 28(19), 23610–23633. <https://doi.org/10.1007/s11356-020-10022-9>
- Guo, Y., Zhou, C., Fang, L., Liu, Z., Li, W., & Yang, M., 2021, Effect of pH on the Catalytic Degradation of Rhodamine B by Synthesized CDs/g-C₃N₄/Cu xO Composites. *ACS Omega*, 6(12), 8119–8130. <https://doi.org/10.1021/acsomega.0c05915>
- Hadiati, S., Ramelan, A. H., Variyani, V. ., Hikam, M., Soegijono, B., Saputri, D. F., & Iriani, Y., 2014, Kajian Variasi Temperatur Annealing dan holding time pada Penumbuhan Lapisan Tipis BaZr_{0,15}Ti_{0,85}O₃ dengan Metode Sol-Gel. *Jurnal Fisika Dan Aplikasinya*, 10(1), 37. <https://doi.org/10.12962/j24604682.v10i1.823>
- Haleem, A., Ullah, M., Rehman, S. ur, Shah, A., Farooq, M., Saeed, T., Ullah, I., & Li, H., 2024, In-Depth Photocatalytic Degradation Mechanism of the. *Water*, 13.
- Handoyo Sahumena, M., Ruslin, R., Asriyanti, A., & Nurrohinta 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>
- Haris, A., Gunawan, Widodo, D. S., Nuryanto, R., Lusiana, R. A., & Viantikasari, M., 2019, Synthesis, Characterization of Cu, S doped TiO₂ and Its Photocatalytic Activity for Degradation of Remazol Black B. *Jurnal Kimia Sains Dan Aplikasi*, 22(2), 47–51. <https://doi.org/https://doi.org/10.14710/jksa.22.2.47-51>
- Hernández, S., Thalluri, S. M., Sacco, A., Bensaid, S., Saracco, G., & Russo, N., 2015, Photo-catalytic activity of BiVO₄ thin-film electrodes for solar-driven water splitting. *Applied Catalysis A: General*, 504, 266–271. <https://doi.org/10.1016/j.apcata.2015.01.019>

- Hussain, M. K., Liu, R., Tanveer, M., Khalid, N. R., & Yin, Z., 2025, Hydrogen and organic synthesis from wastewater with nano photocatalysts : a synergy. *Chemical Synthesis*. <https://doi.org/10.20517/cs.2024.99>
- Indah, M., & Utami, W., 2024, Pengolahan Limbah Zat Warna Batik di Perairan : Systematic Literatur Review Processing of Batik Dyestuff Waste in Waterways : Systematic Literatur. *Jurnal Sains Dan Sains Terapan, II*, 26–33.
- Indriani, D., Fahyuan, H. D., & Ngatijo, N., 2018, Uji UV-Vis Lapisan TiO₂/N₂ untuk Menentukan Band Gap Energy. *Journal Online of Physics*, 3(2), 6–10. <https://doi.org/10.22437/jop.v3i2.5142>
- Jamaaluddin, 2019, Konduktor – Isolator dan Semi Konduktor. In *Universitas Muhammadiyah Sidoarjo* (pp. 60, 72–88). UMSIDA Press.
- Jia, Q., Iwashina, K., & Kudo, A., 2012, Facile fabrication of an efficient BiVO₄ thin film electrode for water splitting under visible light irradiation. *Proceedings of the National Academy of Sciences of the United States of America*, 109(29), 11564–11569. <https://doi.org/10.1073/pnas.1204623109>
- Jiu, J., Wang, F., & Adachi, M., 2004, Preparation of highly photocatalytic active nano-scale TiO₂ by mixed template method. *Materials Letters*, 58(30), 3915–3919. <https://doi.org/10.1016/j.matlet.2004.08.017>
- Jumardin, Maddu, A., Santoso, K., & Isnaeni, 2022, Karakteristik Sifat Optik Nanopartikel Karbon (Carbon Dots) Dengan Metode UV-Vis Drs (Ultraviolet-Visible Diffuse Reflectance Spectroscopy). *JFT: Jurnal Fisika Dan Terapannya*, 9(1), 1–15. <https://doi.org/10.24252/jft.v9i1.28815>
- Kamble, G. S., & Ling, Y. C., 2020, Solvothermal synthesis of facet-dependent BiVO₄ photocatalyst with enhanced visible-light-driven photocatalytic degradation of organic pollutant: assessment of toxicity by zebrafish embryo. *Scientific Reports*, 10(1), 1–11. <https://doi.org/10.1038/s41598-020-69706-4>
- Kamble, G. S., Natarajan, T. S., Patil, S. S., Thomas, M., Chougale, R. K., Sanadi, P. D., Siddharth, U. S., & Ling, Y. C., 2023, BiVO₄ As a Sustainable and Emerging Photocatalyst: Synthesis Methodologies, Engineering Properties, and Its Volatile Organic Compounds Degradation Efficiency. *Nanomaterials*, 13(9), 1–38. <https://doi.org/10.3390/nano13091528>
- Karim, S., Pardoyo, & Subagiyo, A., 2016, Sintesis dan Karakterisasi TiO₂ Terdoping Nitrogen (N-Doped TiO₂) dengan Metode Sol–Gel. *Jurnal Kimia Sains Dan Aplikasi*, 19(2), 63–67.
- Li, R., Zhan, F., Wen, G., Wang, B., Qi, J., Liu, Y., Feng, C., & La, P., 2024, Facile Synthesis of a Micro–Nano-Structured FeOOH/BiVO₄/WO₃ Photoanode with Enhanced Photoelectrochemical Performance. *Catalysts*, 14(11). <https://doi.org/10.3390/catal14110828>
- Mansha, M. S., Iqbal, T., Farooq, M., Riaz, K. N., Afsheen, S., Sultan, M. S., Al-Zaqri, N., Warad, I., & Masood, A., 2023, Facile hydrothermal synthesis of BiVO₄ nanomaterials for degradation of industrial waste. *Heliyon*, 9(5),

- e15978. <https://doi.org/10.1016/j.heliyon.2023.e15978>
- McMichael, S., Fernández-Ibáñez, P., & Byrne, J. A., 2021, A Review of Photoelectrocatalytic Reactors for Water and Wastewater Treatment. *Water*, 13. https://doi.org/10.1007/978-3-031-28756-5_10
- Mehrjouei, M., Müller, S., & Möller, D., 2015, A review on photocatalytic ozonation used for the treatment of water and wastewater. *Chemical Engineering Journal*, 263, 209–219. <https://doi.org/10.1016/j.cej.2014.10.112>
- Meng, S., Ogawa, T., Okumura, H., & Ishihara, K. N., 2020, Enhanced photocatalytic activity of BiVO₄/Bi₂S₃/SnS₂ heterojunction under visible light. *Catalysts*, 10(11), 1–13. <https://doi.org/10.3390/catal10111294>
- Monfort, O., & Plesch, G., 2018, Bismuth vanadate-based semiconductor photocatalysts: a short critical review on the efficiency and the mechanism of photodegradation of organic pollutants. In *Environmental Science and Pollution Research* (Vol. 25, Issue 20). <https://doi.org/10.1007/s11356-018-2437-9>
- Mukhsinin, A., Afrianto, M. F., & Jambi, U., 2019, Rancang Bangun Alat Pembuat Lapisan Tipis Metode Dip Coating Berbasis Arduino Uno. *Jurnal Ilmu Fisika Dan Pembelajarannya*, 3(2), 76–83.
- Musafira, M., Adam, N. M., & Puspitasari, D. J., 2019, Pemanfaatan Limbah Kulit Buah Pisang Kepok (Musa paradisiaca) Sebagai Biosorben Zat Warna Rhodamin B. *KOVALEN: Jurnal Riset Kimia*, 5(3), 308–314. <https://doi.org/10.22487/kovalen.2019.v5.i3.14629>
- Mzimela, N., Tichapondwa, S., & Chirwa, E., 2022, Visible-light-activated photocatalytic degradation of Rhodamine B using WO₃ nanoparticles. *RSC Advances*, 12(53), 34652–34659. <https://doi.org/10.1039/d2ra06124d>
- Naimah, S., A., S. A., Jati, B. N., Aidha, N. N., & Cahyaningtyas, A. A., 2014, Degradasi Zat Warna Pada Limbah Cair Industri Tekstil Dengan Metode Fotokatalitik Menggunakan Nanokomposit TiO₂ – Zeolit. *Jurnal Kimia Dan Kemasan*, 36(2), 225. <https://doi.org/10.24817/jkk.v36i2.1889>
- Nandiyanto, A. B. D., Zaen, R., & Oktiani, R., 2020, Correlation between crystallite size and photocatalytic performance of micrometer-sized monoclinic WO₃ particles. *Arabian Journal of Chemistry*, 13(1), 1283–1296. <https://doi.org/10.1016/j.arabjc.2017.10.010>
- Nguyen, D. T., & Hong, S.-S., 2019, Synthesis of Needle-Like BiVO₄ with Improved Photocatalytic Activity Under Visible Light Irradiation. *Journal of Nanoscience and Nanotechnology*, 19(12), 7696–7701. <https://doi.org/10.1166/jnn.2019.16731>
- Purnamawati, K. Y., Budiarsa Suyasa, I., & Mahardika, I., 2015, Penurunan Kadar Rhodamin B Dalam Air Limbah Dengan Biofiltrasi Sistem Tanaman. *ECOTROPHIC : Jurnal Ilmu Lingkungan (Journal of Environmental Science)*, 9(2), 46. <https://doi.org/10.24843/ejes.2015.v09.i02.p08>

- Rahmadi, R., Suprihanto, A., & Haryadi, G. D., 2021, Pengaruh Dissolved Oxygen (DO) Terhadap Laju Korosi Stainless Steel 304 pada Larutan NaCl 0,1 M. *Jurnal Teknik Mesin S-1*, 9(2), 191–198.
- Rembet, L. K., Abidjulu, J., & Kojong, N. S., 2017, Analisis Kadar Rhodamin B pada Bumbu Jajanan Tahu yang Beredar di Kota Manado. *Pharmacon*, 6(4), 82–86.
- Sabeni, A., Fahdiran, R., & Sugihartono, I., 2022, Review Metode Pseudopotensial Untuk Analisis Band Gap Semikonduktor. *Prosiding Seminar Nasional Fisika (E-Journal) SNF2022*, 10, 13–20. <https://doi.org/10.21009/03.SNF2022>
- Safni, Deliza, & Rahmayeni, 2014, Degradasi Rhodamin B Secara Fotokatalisis Dan Ozonolisis Dengan Penambahan TiO₂-NiFe₂O₄, TiO₂-CuFe₂O₄, Dan TiO₂-MnFe₂O₄. *Jurnal Riset Kimia*, 7(2), 151–160.
- Sahdiah, H., & Kurniawan, R., 2023, Optimasi Tegangan Akselerasi pada Scanning Electron Microscope – Energy Dispersive X-Ray Spectroscopy (SEM-EDX) untuk Pengamatan Morfologi Sampel Biologi. *Jurnal Sains Dan Edukasi Sains*, 6(2), 117–123. <https://doi.org/10.24246/juses.v6i2p117-123>
- Sanjaya, H., Arief, S., & Alif, A., 2007, Pembuatan Lapisan Tipis TiO₂ pada Plat Kaca Dengan Metoda Dipcoating dan Uji Aktivitas Fotokatalisnya pada Air Gambut. *Jurnal Ilmu Fisika Dan Pembelajarannya*, 1(2004), 2234–2239. <https://doi.org/10.16285/j.rsm.2007.10.006>
- Sari, D. N., 2020, Fotodegradasi Zat Warna Titan Kuning dan Fenol Merah menggunakan Katalis Cu/ZnO dan Ag/TiO₂. *Tesis, Universitas Hasanuddin*.
- Setyawan, H. P., & Suryani, O., 2024, Modified Titanium Oxide with Metal Doping as Photocatalyst in Photochemical Water Splitting. *Jurnal Sains Natural*, 14(1), 01–12. <https://doi.org/10.31938/jsn.v14i1.652>
- Srivastava, S., Sinha, R., & Roy, D., 2004, Toxicological effects of malachite green. *Aquatic Toxicology*, 66(3), 319–329. <https://doi.org/10.1016/j.aquatox.2003.09.008>
- Suharyadi, S., Syauqi, M. I., Amelia, P., Yunita, Y., & Gunlazuardi, J., 2023, Dye-Sensitized Solar Cell Photoelectrochemical Tandem System Performance Study: TiO₂ Nanotube/N719, BiVO₄/TiO₂ Nanotube, Ti³⁺/TiO₂ Nanotube for Nitrogen Reduction Reaction to Ammonia. *Indonesian Journal of Chemistry*, 23(3), 583–593. <https://doi.org/10.22146/ijc.76270>
- Tan, G., Zhang, L., Ren, H., Wei, S., Huang, J., & Xia, A., 2013, Effects of pH on the hierarchical structures and photocatalytic performance of BiVO₄ powders prepared via the microwave hydrothermal method. *ACS Applied Materials and Interfaces*, 5(11), 5186–5193. <https://doi.org/10.1021/am401019m>
- Tian, S., Feng, Y., Zheng, Z., & He, Z., 2023, TiO₂-Based Photocatalytic Coatings on Glass Substrates for Environmental Applications. *Coatings*, 13(8), 1–28. <https://doi.org/10.3390/coatings13081472>
- Yanto Rahman, D., & Sulistyowati, R., 2023, Aplikasi Fotokatalis TiO₂ Dan

- Alternatifnya Untuk Degradasi Pewarna Sintetis Dalam Limbah Cair. *Environmental Science Journal (ESJo): Jurnal Ilmu Lingkungan*, 1(2), 89–105. <http://journal.univpgri-palembang.ac.id/index.php/esjo>
- Yu, J., & Kudo, A., 2006, Effects of structural variation on the photocatalytic performance of hydrothermally synthesized BiVO₄. *Advanced Functional Materials*, 16(16), 2163–2169. <https://doi.org/10.1002/adfm.200500799>
- Yu, Q., Xu, J., & Han, Y., 2011, Synthesis and properties control of fluorinated organic-inorganic hybrid films. *Applied Surface Science*, 258(4), 1412–1416. <https://doi.org/10.1016/j.apsusc.2011.09.093>
- Yusuf, M., 2020, Fabrikasi Lapisan Nano Fluorine Doped Tin Oxide (FTO) Dengan Variasi Temperature Menghasilkan Material Bersifat Transparan Dan Konduktif. *Jurnal Teknik Mesin Terapan*, 1(2), 88–94.
- Zacharioudaki, D. E., Fitis, I., & Kotti, M., 2022, Review of Fluorescence Spectroscopy in Environmental Quality Applications. *Molecules*, 27(15). <https://doi.org/10.3390/molecules27154801>
- Zhang, Z., & Yates, J. T., 2012, Band bending in semiconductors: Chemical and physical consequences at surfaces and interfaces. *Chemical Reviews*, 112(10), 5520–5551. <https://doi.org/10.1021/cr3000626>
- Zhong, K., Gao, H., Feng, J., Zhang, Y., & Lai, K., 2019, Facile synthesis of Z-scheme Se/BiVO₄ heterojunction with enhanced visible-light-driven photocatalytic performance. *Journal of Materials Science*, 54(15), 10632–10643. <https://doi.org/10.1007/s10853-019-03634-1>
- Zhou, C., Liu, Z., Fang, L., Guo, Y., Feng, Y., & Yang, M., 2020, Kinetic and mechanistic study of rhodamine b degradation by H₂O₂ and Cu/Al₂O₃/g-C₃N₄ composite. *Catalysts*, 10(3). <https://doi.org/10.3390/catal10030317>