

DAFTAR PUSTAKA

- Abbad, S., Guergouri, K., Gazaout, S., Djebabra, S., Zertal, A., Barille, R., and Zaabat, M., 2020, Effect of silver doping on the photocatalytic activity of TiO₂ nanopowders synthesized by the sol-gel route, *J. Environ. Chem. Eng.*, 8, 2213–3437.
- Abraham, C. and Gomathi Devi, L., 2022, Incorporation of Fe³⁺ ions into the W⁶⁺ and N³⁻ doped TiO₂: Exploration of crucial role of Fe³⁺ dopant ion and correlation of adsorption characteristics with reaction dynamics, *Surf. Sci.*, 717, .
- Agustinus, N., Fatimah, Fauziah, W.F.N., and Sihombing, R.P., 2020, Konversi Karat Besi Menjadi Besi (III) Sulfat dan Pemanfaatannya Sebagai Adsorpsi Pewarna Tekstil, *KOVALEN J. Ris. Kim.*, 6, 177–183.
- Aritonang, A.B., Pratiwi, E., Warsidah, W., Nurdiansyah, S.I., and Risiko, R., 2021, Fe-doped TiO₂/Kaolinite as an antibacterial photocatalyst under visible light irradiation, *Bull. Chem. React. Eng. Catal.*, 16, 293–301.
- Babar, S., Gavade, N., Shinde, H., Mahajan, P., Lee, K.H., Mane, N., Deshmukh, A., Garadkar, K., and Bhuse, V., 2018, Evolution of Waste Iron Rust into Magnetically Separable g-C₃N₄-Fe₂O₃ Photocatalyst: An Efficient and Economical Waste Management Approach, *ACS Appl. Nano Mater.*, 1, 4682–4694.
- Bagwan, U.R., Shaikh, I.N., Malladi, R.S., Harihar, A.L., and Hunagund, S.M., 2020, Effect of titanium dioxide and gadolinium dopants on photocatalytic behavior for acriflavine dye, *J. Rare Earths*, 38, 234–240.
- Barkhade, T. and Banerjee, I., 2019, Optical properties of Fe doped TiO₂ nanocomposites synthesized by sol-gel technique, *Mater. Today Proc.*, 18, 1204–1209.
- Baruah, M., Ezung, S.L., Supong, A., Bhomick, P.C., Kumar, S., and Sinha, D., 2021, Synthesis, characterization of novel Fe-doped TiO₂ activated carbon nanocomposite towards photocatalytic degradation of Congo red, E. coli, and S. aureus, *Korean J. Chem. Eng.*, 38, 1277–1290.
- Buddee, S., Wongnawa, S., Sirimahachai, U., and Puetpaibool, W., 2011, Recyclable UV and visible light photocatalytically active amorphous TiO₂ doped with M (III) ions (M = Cr and Fe), *Mater. Chem. Phys.*, 126, 167–177.
- Casanova, L.C., Pérez, A., Ródenas, M.A., and Martínez, M. del C., 2018, Effect of the preparation method (sol-gel or hydrothermal) and conditions on the TiO₂ properties and activity for propene oxidation, *Materials (Basel)*, 11, 1–18.

- Charitha, T., Leshan, U., Shanitha, M., Ramanee, W., Buddi, L., and Martin, B., 2021, Efficient photodegradation activity of α -Fe₂O₃/Fe₂TiO₅/TiO₂ and Fe₂TiO₅/TiO₂ nanocomposites synthesized from natural ilmenite, *Results Mater.*, 12, 1–14.
- Chen, Y. and Lin, T., 2020, applied sciences Enhancement of Visible-Light Photocatalytic Efficiency of TiO₂ Nanopowder by Anatase / Rutile Dual Phase Formation, *Appl. Sci.*, 10, 1–11.
- Crişan, M., Drăgan, N., Crişan, D., Ianculescu, A., Niţoi, I., Oancea, P., Todan, L., Stan, C., and Stănică, N., 2016, The effects of Fe, Co and Ni dopants on TiO₂ structure of sol–gel nanopowders used as photocatalysts for environmental protection: A comparative study, *Ceram. Int.*, 42, 3088–3095.
- Daghrir, R., Drogui, P., and Robert, D., 2013, Modified TiO₂ for environmental photocatalytic applications: A review, *Ind. Eng. Chem. Res.*, 52, 3581–3599.
- Dai, X., Lu, G., Hu, Y., Xie, X., Wang, X., and Sun, J., 2019, Reversible redox behavior of Fe₂O₃/TiO₂ composites in the gaseous photodegradation process, *Ceram. Int.*, 45, 13187–13192.
- Dbik, A., Bentahar, S., Khomri, M. El, Messaoudi, N. El, and Lacherai, A., 2019, Materials Today: Proceedings Adsorption of Congo red dye from aqueous solutions using tunics of the corm of the saffron, *Mater. Today Proc.*, 2214–7853.
- Erdemoğlu, S., Aksu, S.K., Sayilkan, F., Izgi, B., Asiltürk, M., Sayilkan, H., Frimmel, F., and Güçer, Ş., 2008, Photocatalytic degradation of Congo Red by hydrothermally synthesized nanocrystalline TiO₂ and identification of degradation products by LC-MS, *J. Hazard. Mater.*, 155, 469–476.
- Fischer, D.K., Rodrigues De Fraga, K., and Scheeren, C.W., 2022, Ionic liquid/TiO₂nanoparticles doped with non-expensive metals: New active catalyst for phenol photodegradation, *RSC Adv.*, 12, 2473–2484.
- Ghasemi, S., Rahimnejad, S., Setayesh, S.R., Rohani, S., and Gholami, M.R., 2009, Transition metal ions effect on the properties and photocatalytic activity of nanocrystalline TiO₂ prepared in an ionic liquid, *J. Hazard. Mater.*, 172, 1573–1578.
- Ghorbanpour, M. and Feizi, A., 2019, Iron-doped TiO₂ Catalysts with Photocatalytic Activity, *J. Water Environ. Nanotechnol.*, 4, 60–66.
- Haiqi, O. Al, Nour, A.H., Bargaa, R., and Ayodele, B.V., 2020, Effect of Process Parameters on the Photocatalytic Degradation of Phenol in Oilfield Produced Wastewater using ZnO / Fe₂O₃ Nanocomposites, 15, 128–136.

- Han, G., Du, Y., Huang, Y., Wang, W., Su, S., and Liu, B., 2022, Chemosphere Study on the removal of hazardous Congo red from aqueous solutions by chelation flocculation and precipitation flotation process, *Chemosphere*, 289, 133109.
- Hanis, K.K.A., Muhammad Nasri, A.R., Wan Farahiyah, W.K., and Mohd Rabani, M.Y., 2020, Bacterial Degradation of Azo Dye Congo Red by *Bacillus* sp., *J. Phys. Conf. Ser.*, 2, 1–9.
- J. Hashim, S., N. Salman, O., and I. Hasson, K., 2020, The Optical properties of Fe-Doped TiO₂ films prepared by Hydrothermal Technique, *Al-Nahrain J. Sci.*, 23, 7–16.
- Jerie, S., 2016, Occupational risks associated with solid waste management in the informal sector of Gweru, Zimbabwe, *J. Environ. Public Health*, 1–14.
- Khaki, M.R.D., Shafeeyan, M.S., Raman, A.A.A., and Daud, W.M.A.W., 2017, Application of doped photocatalysts for organic pollutant degradation - A review, *J. Environ. Manage.*, 198, 78–94.
- Khasawneh, O.F.S. and Palaniandy, P., 2021, Removal of organic pollutants from water by Fe₂O₃/TiO₂ based photocatalytic degradation: A review, *Environ. Technol. Innov.*, 21, 1864–2352.
- Khoshnevisan, B., Marami, M.B., and Farahmandjou, M., 2018, Fe³⁺-Doped Anatase TiO₂ Study Prepared by New Sol-Gel Precursors, *Chinese Phys. Lett.*, 35, 27501–27505.
- Kumar, A., 2017, A Review on the Factors Affecting the Photocatalytic Degradation of Hazardous Materials, *Mater. Sci. Eng. Int. J.*, 1, 106–114.
- Kumar, P., Rawat, N., Hang, D., Lee, H., and Kumar, R., 2015, Controlling Band Gap and Refractive Index in Dopant-Free alpha-Fe₂O₃ Films Controlling Band Gap and Refractive Index in Dopant-Free α -Fe₂O₃ Films, *Electron. Mater. Lett.*, 11, 13–23.
- Li, H., Hao, Y., Lu, H., Liang, L., Wang, Yuanyang, Qiu, J., Shi, X., Wang, Ying, and Yao, J., 2015, A systematic study on visible-light N-doped TiO₂ photocatalyst obtained from ethylenediamine by sol-gel method, *Appl. Surf. Sci.*, 344, 112–118.
- Litefti, K., Freire, M.S., Stitou, M., and González-Álvarez, J., 2019, Adsorption of an anionic dye (Congo red) from aqueous solutions by pine bark, *Sci. Rep.*, 9, 1–11.
- Ljubas, D., Smoljanić, G., and Juretić, H., 2015, Degradation of Methyl Orange and Congo Red dyes by using TiO₂ nanoparticles activated by the solar and the solar-like radiation, *J. Environ. Manage.*, 161, 83–91.
- Lynch, J., Giannini, C., Cooper, J.K., Loiudice, A., Sharp, I.D., and Buonsanti, R., 2015, Substitutional or interstitial site selective nitrogen doping in TiO₂

- nanostructures, *J. Phys. Chem. C*, 119, 7443–7452.
- Matias, M.L., Pimentel, A., Reis-Machado, A.S., Rodrigues, J., Deuermeier, J., Fortunato, E., Martins, R., and Nunes, D., 2022, Enhanced Fe-TiO₂ Solar Photocatalysts on Porous Platforms for Water Purification, *Nanomaterials*, 12, 1–23.
- Mironyuk, I., Danyliuk, N., Tatarchuk, T., Mykytyn, I., and Kotsyubynsky, V., 2021, Photocatalytic degradation of Congo red dye using Fe-doped TiO₂ nanocatalysts, *Phys. Chem. Solid State*, 22, 697–710.
- Mishra, A., Mehta, A., and Basu, S., 2018, Clay supported TiO₂ nanoparticles for photocatalytic degradation of environmental pollutants: A review, *J. Environ. Chem. Eng.*, 6, 6088–6107.
- Mohamed, R.M.S.R., Mt.Nanyan, N., Rahman, N.A., Kutty, N.M.A.I., and Kassim, A.H.M., 2014, Colour Removal of Reactive Dye from Textile Industrial Wastewater using Different Types of Coagulants, *Asian J. Appl. Sci.*, 2, 2321–0893.
- Nandanwar, R., Singh, P., and Haque, F., 2015, Synthesis and Characterization of SiO₂ Nanoparticles by Sol-Gel Process and Its Synthesis and Characterization of SiO₂ Nanoparticles by Sol-Gel Process and Its Degradation of Methylene Blue, *Am. Chem. Sci. J.*, 5, 1–10.
- Patel, H. and Vashi, R.T., 2012, Removal of Congo Red dye from its aqueous solution using natural coagulants, *J. Saudi Chem. Soc.*, 16, 131–136.
- Patle, L.B., Labhane, P.K., Huse, V.R., Gaikwad, K.D., and Chaudhari, A.L., 2018, Synthesis and structural analysis of Fe doped TiO₂ nanoparticles using Williamson Hall and Scherer Model, *AIP Conf. Proc.*, 1953, 1–5.
- Pawar, M., Sengođdular, S.T., and Gouma, P., 2018, A brief overview of TiO₂ photocatalyst for organic dye remediation: Case study of reaction mechanisms involved in Ce-TiO₂ photocatalysts system, *J. Nanomater.*, 1–13.
- Qian, R., Zong, H., Schneider, J., Zhou, G., Zhao, T., Li, Y., Yang, J., Bahnemann, D.W., and Pan, J.H., 2019, Charge carrier trapping, recombination and transfer during TiO₂ photocatalysis: An overview, *Catal. Today*, 335, 78–90.
- Rajaramanan, T., Shanmugaratnam, S., Gurunathanan, V., Yohi, S., Velauthapillai, D., Ravirajan, P., and Senthilnathanan, M., 2021, Cost effective solvothermal method to synthesize zn-doped tio₂ nanomaterials for photovoltaic and photocatalytic degradation applications, *Catalysts*, 11, 2–13.
- Ramirez, L., Gentile, R.S., Zimmerman, S., and Stoll, S., 2019, Drinking and Lake Geneva Waters . Impact of Water, *Water*, 11, 2–14.

- Razani, A., Abdullah, A.H., Fitrianto, A., Yusof, N.A., and Gaya, U.I., 2017, Sol-gel synthesis of Fe₂O₃-doped TiO₂ for optimized photocatalytic degradation of 2,4-dichlorophenoxyacetic acid, *Orient. J. Chem.*, 33, 1959–1968.
- Reddam, H.A., Elmail, R., Lloria, S.C., Monrós, T.G., Redam, Z.A., and Coloma-Pascual, F., 2020, Synthesis of Fe, Mn and Cu modified TiO₂ photocatalysts for photodegradation of Orange II, *Bol. la Soc. Esp. Ceram. y Vidr.*, 59, 138–148.
- Rzaij, J.M. and Abass, A.M., 2020, Review on: TiO₂ Thin Film as a Metal Oxide Gas Sensor, *J. Chem. Rev.*, 2, 114–121.
- Seo, S.H. and Kim, B. Il, 2020, Effect of Cu, Cr, S doped TiO₂ for transparent plastic bar reinforced concrete, *Appl. Sci.*, 10, 1–14.
- Shi, J., Chen, G., Zeng, G., Chen, A., He, K., Huang, Z., Hu, L., Zeng, J., Wu, J., and Liu, W., 2018, Hydrothermal synthesis of graphene wrapped Fe-doped TiO₂ nanospheres with high photocatalysis performance, *Ceram. Int.*, 0–1.
- Shyniya, C.R., Bhabu, K.A., and Rajasekaran, T.R., 2017, Enhanced electrochemical behavior of novel acceptor doped titanium dioxide catalysts for photocatalytic applications, *J. Mater. Sci. Mater. Electron.*, 28, 6959–6970.
- Slama, H. Ben, Bouket, A.C., Pourhassan, Z., Alenezi, F.N., Silini, A., Cherif-Silini, H., Oszako, T., Luptakova, L., Golińska, P., and Belbahri, L., 2021, Diversity of synthetic dyes from textile industries, discharge impacts and treatment methods, *Appl. Sci.*, 11, 1–21.
- Solano, R.A., Herrera, A.P., Maestre, D., and Cremades, A., 2019, Fe-TiO₂ Nanoparticles Synthesized by Green Chemistry for Potential Application in Waste Water Photocatalytic Treatment, *J. Nanotechnol.*, 1–11.
- Sood, S., Umar, A., Kumar, Surinder, and Kumar, Sushil, 2015, Journal of Colloid and Interface Science Highly effective Fe-doped TiO₂ nanoparticles photocatalysts for visible- light driven photocatalytic degradation of toxic organic compounds, *J. Colloid Interface Sci.*, 450, 213–223.
- Sun, Q., Li, K., Wu, S., Han, B., Sui, L., and Dong, L., 2020, Remarkable improvement of TiO₂ for dye photocatalytic degradation by a facile post-treatment, *New J. Chem.*, 44, 1942–1952.
- Ullah, I., Haider, A., Khalid, N., Ali, S., Ahmed, S., Khan, Y., Ahmed, N., and Zubair, M., 2018, Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy Tuning the band gap of TiO₂ by tungsten doping for efficient UV and visible photodegradation of Congo red dye, 204, 150–157.
- Wahab, A.M., Sayed, A.-S., Omima, M., and Nasr, O., 2017, Photocatalytic degradation of paracetamol over magnetic flower-like TiO₂/Fe₂O₃ core-shell

- nanostructures, *J. Photochem. Photobiol. A Chem.*, 347, 186–198.
- Wang, L., Wang, Z., Wang, D., Shi, X., Song, H., and Gao, X., 2014, The photocatalysis and mechanism of new SrTiO₃/TiO₂, *Solid State Sci.*, 31, 85–90.
- Yaneva, Z.L. and Georgieva, N. V, 2012, Insights into Congo Red Adsorption on Agro-Industrial Materials - Spectral , Equilibrium , Kinetic , Thermodynamic , Dynamic and Desorption Studies . A Review, 4, 127–146.
- Zafar, Z., Ali, I., Park, S., and Kim, J.O., 2020, Effect of different iron precursors on the synthesis and photocatalytic activity of Fe–TiO₂ nanotubes under visible light, *Ceram. Int.*, 46, 3353–3366.
- Zangeneh, H., Zinatizadeh, A.A., Feyzi, M., Zinadini, S., and Bahnemann, D.W., 2018, Application of a novel triple metal-nonmetal doped TiO₂ (K-B-N-TiO₂) for photocatalytic degradation of Linear Alkyl Benzene (LAB) industrial wastewater under visible light, *Mater. Sci. Semicond. Process.*, 75, 193–205.
- Zeng, M., 2013, Influence of TiO₂ surface properties on water pollution treatment and photocatalytic activity, *Bull. Korean Chem. Soc.*, 34, 953–956.
- Zhang, G., Zhang, X., Meng, Y., Pan, G., Ni, Z., and Xia, S., 2020, Layered double hydroxides-based photocatalysts and visible-light driven photodegradation of organic pollutants: A review, *Chem. Eng. J.*, 392, 123684.