SINTESIS NANOKOMPOSIT Fe3O4/ZnO-Cu DAN UJI AKTIVITASNYA SEBAGAI FOTOKATALIS PADA DEGRADASI RHODAMIN B
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DAFTAR PUSTAKA

Agustin, D., 2018, Sintesis Nanopartikel $Fe_3O_4/SiO_2/ZnO$ sebagai Fotokatalis untuk Fotodegradasi Remazol Black dalam Limbah Batik, *Skripsi*, Departemen Kimia, Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Gadjah Mada, Yogyakarta.

Amdeha, E. and Mohamed, R.S., 2019, A green synthesized recyclable ZnO/MIL-101(Fe) for Rhodamine B dye removal via adsorption and photo-degradation under UV and visible light irradiation, *Environ. Technol. (United Kingdom)*, 0, 1–18.

Ben Ameur, S., BelHadjltaief, H., Duponchel, B., Leroy, G., Amlouk, M., Guermazi, H., and Guermazi, S., 2019, Enhanced photocatalytic activity against crystal violet dye of Co and In doped ZnO thin films grown on PEI flexible substrate under UV and sunlight irradiations, *Heliyon*, 5, 01912.

Bhatia, P. and Nath, M., 2020, Green synthesis of p-NiO/n-ZnO nanocomposites: Excellent adsorbent for removal of congo red and efficient catalyst for reduction of 4-nitrophenol present in wastewater, *J. Water Process Eng.*, 33, 101017.

Budi, I.S., 2019, Sintesis Nanokomposit Fe_3O_4/TiO_2-PANI dan Aplikasinya untuk Reduksi Fotokatalitik Ion Pb(II), *Tesis*, Departemen Kimia, Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Gadjah Mada, Yogyakarta.

Chandekar, K. V., Shkir, M., Al-Shehri, B.M., AlFaify, S., Halor, R.G., Khan, A., Al-Namshah, K.S., and Hamdy, M.S., 2020, Visible light sensitive Cu doped ZnO: Facile synthesis, characterization and high photocatalytic response, *Mater. Charact.*, 165, 110387.

Chandra, D.A.P., 2012, Degradasi Fotokatalitik Zat Warna Tekstil Rhodamin B Menggunakan Zeolit Terimpregnasi TiO_2, *Skripsi*, Departemen Kimia, Fakultas Sains dan Teknologi, Universitas Airlangga, Surabaya.

Cheng, J.P., Ma, R., Chen, X., Shi, D., Liu, F., and Zhang, X.B., 2011, Effect of ferric ions on the morphology and size of magnetite nanocrystals synthesized by ultrasonic irradiation, *Cryst. Res. Technol.*, 46, 723–730.

Cynthia Jemima Swarnavalli, G., Dinakaran, S., Krishnaveni, S., and Bhalerao, G.M., 2019, Rapid one pot synthesis of Ag/ZnO nanoflowers for photocatalytic degradation of nitrobenzene, *Mater. Sci. Eng. B Solid-State Mater. Adv. Technol.*, 247, 114376.

Das, B.K., Das, T., Parashar, K., Thirumurugan, A., and Parashar, S.K.S., 2017, Structural, bandgap tuning and electrical properties of Cu doped ZnO nanoparticles synthesized by mechanical alloying, *J. Mater. Sci. Mater. Electron.*, 28, 15127–15134.

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Delsouz Khaki, M.R., Shafeeyan, M.S., Raman, A.A.A., and Daud, W.M.A.W., 2018, Evaluating the efficiency of nano-sized Cu doped TiO2/ZnO photocatalyst under visible light irradiation, *J. Mol. Liq.*, 258, 354–365.

Ferhat, M., Zaoui, A., and Ahuja, R., 2009, Magnetism and band gap narrowing in Cu-doped ZnO, *Appl. Phys. Lett.*, 94, 1–4.

Fu, H., Pan, C., Yao, W., and Zhu, Y., 2005, Visible-light-induced degradation of rhodamine B by nanosized Bi 2WO6, *J. Phys. Chem. B*, 109, 22432–22439.

Fu, M., Li, Y., Wu, S., Lu, P., Liu, J., and Dong, F., 2011, Sol-gel preparation and enhanced photocatalytic performance of Cu-doped ZnO nanoparticles, *Appl. Surf. Sci.*, 258, 1587–1591.

Gawande, M.B., Branco, P.S., and Varma, R.S., 2013, Nano-magnetite (Fe_3O_4) as a support for recyclable catalysts in the development of sustainable methodologies, *Chem. Soc. Rev.*, 42, 3371–3393.

Gonzalez-Valls, I. and Lira-Cantu, M., 2009, Vertically-aligned nanostructures of ZnO for excitonic solar cells: A review, *Energy Environ. Sci.*, 2, 19–34.

Hartman, P. and Chan, H.K., 1993, Application of the Periodic Bond Chain (PBC) Theory and Attachment Energy Consideration to Derive the Crystal Morphology of Hexamethylmelamine, *Pharm. Res. An Off. J. Am. Assoc. Pharm. Sci.*, 10, 1052–1058.

Huang, X., Chen, R., Zhang, C., Chai, J., Wang, S., Chi, D., and Chua, S.J., 2016, Ultrafast and Robust UV Luminescence from Cu-Doped ZnO Nanowires Mediated by Plasmonic Hot Electrons, *Adv. Opt. Mater.*, 4, 960–966.

Joshi, K., Rawat, M., Gautam, S.K., Singh, R.G., Ramola, R.C., and Singh, F., 2016, Band gap widening and narrowing in Cu-doped ZnO thin films, *J. Alloys Compd.*, 680, 252–258.

Kale, G.K. and Borawake, G.A., 2018, Synthesis and characterization of ZnO dopped Fe_3O_4 nanocomposite material and its heterogeneous photocatalytic activity for degradation of phenol, *Int. Res. J. Sci. Eng.*, 49–55.

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.

Khataee, A., Kiranşan, M., Karaca, S., and Arefi-Oskoui, S., 2016, Preparation and characterization of ZnO/MMT nanocomposite for photocatalytic ozonation of a disperse dye, *Turkish J. Chem.*, 40, 546–564.

Kolodziejczak-Radzimska, A. and Jesionowski, T., 2014, Zinc oxide-from synthesis to application: A review, *Materials (Basel).*, 7, 2833–2881.

Kostopoulou, A., Thétiot, F., Tsiaoussis, I., Androulidaki, M., Cozzoli, P.D., and Lappas, A., 2012, Colloidal anisotropic ZnO-Fe@Fe_xO_y nanoarchitectures with interface-mediated exchange-bias and band-edge ultraviolet

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fluorescence, *Chem. Mater.*, 24, 2722–2732.

Landi, S., Carneiro, J., Ferdov, S., Fonseca, A.M., Neves, I.C., Ferreira, M., Parpot, P., Soares, O.S.G.P., and Pereira, M.F.R., 2017, Photocatalytic degradation of Rhodamine B dye by cotton textile coated with SiO_2-TiO_2 and SiO_2-TiO_2-HY composites, *J. Photochem. Photobiol. A Chem.*, 346, 60–69.

Li, X.-M., Xu, G., Liu, Y., and He, T., 2011, Magnetic Fe_3O_4 Nanoparticles: Synthesis and Application in Water Treatment, *Nanosci. &Nanotechnology-Asia*, 1, 14–24.

Liu, K., Qin, Y., Muhammad, Y., Zhu, Y., Tang, R., Chen, N., Shi, H., Zhang, H., Tong, Z., and Yu, B., 2019, Effect of Fe_3O_4 content and microwave reaction time on the properties of Fe_3O_4/ZnO magnetic nanoparticles, *J. Alloys Compd.*, 781, 790–799.

Mittal, M., Sharma, M., and Pandey, O.P., 2014, UV-Visible light induced photocatalytic studies of Cu doped ZnO nanoparticles prepared by co-precipitation method, *Sol. Energy*, 110, 386–397.

Narayanan, N. and Deepak, N.K., 2018, Enhancement of visible luminescence and photocatalytic activity of ZnO thin films via Cu doping, *Optik (Stuttg).*, 158, 1313–1326.

Nurjanah, S., Maghviroh, N.A., and Bemis, R., 2019, Sintesis dan karakterisasi fotokatalis ZnO / Karbon Aktif (KA) dan aplikasinya pada degradasi rhodamin B, *Chempublish Journal*, 4, 101–113.

Ong, C.B., Ng, L.Y., and Mohammad, A.W., 2018, A review of ZnO nanoparticles as solar photocatalysts: Synthesis, mechanisms and applications, *Renew. Sustain. Energy Rev.*, 81, 536–551.

Pandian, L., Rajasekaran, R., and Govindan, P., 2018, Synthesis, characterization and application of Cu doped ZnO nanocatalyst for photocatalytic ozonation of textile dye and study of its reusability, *Mater. Res. Express*, 5, .

Perillo, P.M. and Atia, M.N., 2018, Solar-assisted Photodegradation of Methyl Orange using Cu-doped ZnO Nanorods, *Mater. Today Commun.*, 17, 252–258.

Puneetha, J., Nagaraju, K., Nagaraju, G., Rathna, A., 2020, Visible light active ZnO nanostructure prepared by simple co-precipitation, *J Photonics*., 39, 100781

Qin, Y., Zhang, H., Tong, Z., Song, Z., and Chen, N., 2017, A facile synthesis of Fe_3O_4@SiO_2@ZnO with superior photocatalytic performance of 4-nitrophenol, *J. Environ. Chem. Eng.*, 5, 2207–2213.

Rahman, Q.I., Ahmad, M., Misra, S.K., and Lohani, M., 2013, Effective photocatalytic degradation of rhodamine B dye by ZnO nanoparticles, *Mater. Lett.*, 91, 170–174.

Raizada, P., Sudhaik, A., and Singh, P., 2019, Photocatalytic water decontamination using graphene and ZnO coupled photocatalysts: A review,

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Mater. Sci. Energy Technol., 2, 509–525.

Saffari, J., Mir, N., Ghanbari, D., Khandan-Barani, K., Hassanabadi, A., and Hosseini-Tabatabaei, M.R., 2015, Sonochemical synthesis of Fe_3O_4/ZnO magnetic nanocomposites and their application in photo-catalytic degradation of various organic dyes, *J. Mater. Sci. Mater. Electron.*, 26, 9591–9599.

Sakthivel, S., Neppolian, B., Shankar, M. V., Arabindoo, B., Palanichamy, M., and Murugesan, V., 2003, Solar photocatalytic degradation of azo dye: Comparison of photocatalytic efficiency of ZnO and TiO_2, *Sol. Energy Mater. Sol. Cells*, 77, 65–82.

Smazna, D., Shree, S., Polonskyi, O., Lamaka, S., Baum, M., Zheludkevich, M., Faupel, F., Adelung, R., and Mishra, Y.K., 2019, Mutual interplay of ZnO micro- and nanowires and methylene blue during cyclic photocatalysis process, *J. Environ. Chem. Eng.*, 7, 103016.

Tran Thi, V.H., Cao, T.H., Pham, T.N., Pham, T.T., and Le, M.C., 2019, Synergistic Adsorption and Photocatalytic Activity under Visible Irradiation Using Ag-ZnO/GO Nanoparticles Derived at Low Temperature, *J. Chem.*, 2019, .

Tripathy, D., Adeyeye, A.O., Boothroyd, C.B., and Piramanayagam, S.N., 2007, Magnetic and transport properties of Co-doped Fe3 O4 films, *J. Appl. Phys.*, 101, 2–8.

Wang, X.L., Luan, C.Y., Shao, Q., Pruna, A., Leung, C.W., Lortz, R., Zapien, J.A., and Ruotolo, A., 2013, Effect of the magnetic order on the room-temperature band-gap of Mn-doped ZnO thin films, *Appl. Phys. Lett.*, 102, .

Winataputra, D.S., Dewi, S.H., dan Ridwan, 2104, Sintesis dan Karakterisasi Komposit Fe_3O_4@ZnO dengan Metoda Presipitasi., *Jurnal Teknologi Pengolahan Limbah*, 1, 17, 71-77.

Worathitanon, C., Jangyubol, K., Ruengrung, P., Donphai, W., Klysubun, W., Chanlek, N., Prasitchoke, P., and Chareonpanich, M., 2019, High performance visible-light responsive Chl-Cu/ZnO catalysts for photodegradation of rhodamine B, *Appl. Catal. B Environ.*, 241, 359–366.

Yang, Y., Guo, Y., Hu, C., Jiang, C., and Wang, E., 2003, Synergistic effect of Keggin-type [Xn+W11O39](12-n)- and TiO_2 in macroporous hybrid materials [Xn+W11O39](12-n)--TiO_2 for the photocatalytic degradation of textile dyes, *J. Mater. Chem.*, 13, 1686–1694.

Yogamalar, N.R. and Chandra Bose, A., 2011, Burstein-Moss shift and room temperature near-band-edge luminescence in lithium-doped zinc oxide, *Appl. Phys. A Mater. Sci. Process.*, 103, 33–42.