DAFTAR PUSTAKA

Abbas, M., Rao, B.P., Naga, S.M., Tanakahashi, M., and Kim, C., 2013, Synthesis of high magnetization hydrophilic magnetite (Fe_3O_4) nanoparticles in single reaction-surfactantless polyol process, *Ceram. Int.*, 39, 7605-7611.

Ao, B., Zhang, Z., Tang, T., and Zhao Y., 2015, Role of Cu concentration in the photocatalytic activities of Cu-doped TiO_2 from GGA+U calculations, *Solid State Commun.*, 204, 23-27.

Banerjee, S., Gopal, J., Muraleedharan, P., Tyagi, A.K., and Raj, B., 2006, Physic and chemistry of titanium dioxide: Visualization of bacteridical activity using atomic force microscopy, *Curr. Sci*., 90,1378-1383.

Banisharif, A., Elahi, S.H., Firooz, A.A., Khodadadi, A.A., and Mortazavi, Y., 2013, TiO_2/Fe_3O_4 Nanocomposite Photocatalyst for Enhanced Photo-Decolorization of Congo Red Dye, *Int. J. Nanosci. Nanotechnol*., 9, 193-202.

Bashiri, R., Mohamed, N.M., Kait, C.F., and Sufian, S., 2015, Hydrogen Production from water photospliting using Cu/TiO_2 nanoparticles: Effect of hydrolisis rate and reaction medium, *Int. J. Hydrogen Energy.*, 40, 6021-6037.

Budi, I.S., 2015, Synthesis of Polyanaline Sensitized $Fe_3O_4/SiO_2/TiO_2$ Nanoparticles as a photocatalytist for photoreduction of Au(III) ion in $[AuCl_4]^-$ Solution, *Skripsi*, Chemistry Department, Faculty of Mathematics and Natural Science, Universitas Gadjah Mada, Yogyakarta.

Carvalho, H.W.P., Batista, A.P.L, Hammer, P., and Ramalho, T.C., 2010, Photocatalytic degradation of methylene blue by TiO_2-Cu thin film: Theoritical and experimental study, *J. Hazard. Mater*., 184, 273-280.

Cheng, J.P., Ma, R., Li, M., Wu, J.S., Liu, F., and Zhang, X.B., 2012, Anatase Nanocrystal coating on silica-coated magnetite: role polyacrylic acid treatment and its photocatalytic properties, *J. Chem. Eng*., 210, 80-86.

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

Chiang, L.F., and Doong, R., 2015, Enhanced photocatalytic degradation of sulfamethoxazole by visible-light sensitive TiO_2 with low Cu addition, *Sep. Purif. Technol*., 156, 1003-1010.

Chin, S., Park, E., Kim, M., and Jurg, J., 2010, Photocatalytic degradation of methylene blue with TiO_2 nanoparticles prepared by a thermal decomposition process, *Powder Technol.*, 210, 171-176.

Choi, J., Park, H., and Hoffman, M.R., 2009, Effect of Single Metal-Ion Doping on the Visible-Light Photo-Reactivity of TiO_2., *J. Phys. Chem. C*, 17-56.

Dang, F., Enomoto, N., Hojo, J., and Anpuku, K., 2009, Sonochemical Synthesis of Monodispersed Magnetite Nanoparticles by Using an ethanol-Water Mixed Solvent, *J. Ultrason. Sonochem*, 16, 649,654.

Deshmane, V.G., Owen, S.L.,Abrokwah, R.Y., and Kulia D, 2015. Mesoporous nanocrystalline TiO_2 supported metal (Cu, Co, Ni, Pd, Zn, and Sn) catalysts: Effect of metal-support interactions on steam reforming of methanol. *Chem J. Mol. Catal*., 408, 202–213.

Fan, Y., Ma, C., Li, W., and Yin, Y., 2012, Synthesis and Properties of $Fe_3O_4/SiO_2/TiO_2$ Nanocomposites by Hydrothermal Synthetic Method, *Mater. Sci Semicond. Process.*, 15, 582-585.

Gad-Allah, T.A., Fujimura, K., Kato, S., Satokawa, S., and Koima T, 2008, Preparation and Characterization of Magnetically separable photocatayst ($TiO_2/SiO_2/Fe_3O_4$): effect of carbon coating and calcination temperature. *J. Hazard. Mater.*, 154, 572-577.

Ganesh, I., Kumar, P.P., Annapoorna, I., Sumliner, J.M., Ramakrishna, M., Hebalkar, N.Y., Padmanabham, G, and Sundararajan, G., 2014, Preparation and characterization of Cu-doped TiO_2 materials for electrochemical, photoelectrochemical, and photocatalytic applications., *Appl. Surf. Sci.,*293,229-247.

He, Q., Zhang, Z., Xiong, J., Xiong, Y., and Xiao, H., 2008, A novel biomaterial: Fe_3O_4/TiO_2 core-shell nanoparticle with magnetic performance and high visible light photocatalyst activity, *J. Opt. Mater*., 31, 380-384.

Hoffmann, M.R., Martin, S.T., Choi, W., and Bahnemann, D.W., 1995, Environmental Aplications of Semiconductor Photocatalyst, *J. Chem.*, 95, 69-95.

Houas, A., Lachheb, H., Ksibi, M., Elaloui, E., Guillard, C., and Herrmann, M.M., 2001, Photocatalytic degradation pathawy of methylene blue in water, *App. Catal. B*., 31, 145-157.

Hu, X., Yang, J., and Zhang, J., 2011, Magnetic loading of $TiO_2/SiO_2/Fe_3O_4$ nanoparticles on electrode surface for photoelectrocatalytic degradation of diclofenac, *J. Hazard. Mater.*, 196, 220-227.

Iida, H., Takayanagi, K., Nakanishi, T., and Osaka, T., 2007, Synthesis of Fe3O4 nanoparticles with various sizes and magnetic properties by controlled hydrolisis, *J. Colloid Interface Sci*., 314.

Konstantinou, I.K., and Albanis, T.A., 2004, TiO_2-assisted photocatalytic degradation of azo dyes in aqueous solution: kinetic and mechanistic investigations A review, *Appl. Catal. B.*, 49, 1-4.

Kurniawan, C., 2008, Studi Tentang Sifat Luminisensi Nanopartikel (Ca_xSr_{1-x}) TiO_3: RE (RE:Pr^{3+}, Eu^{3+} dan Tb^{3+}) yang dipreparasi dengan metode sonokimia. Tesis, Chemistry Department, Faculty Mathematic and Science, ITB, Bandung.

Lee, S., and Park, S.J., 2013, TiO_2 photocatalyst for water treatment aplications, *J. Ind. Eng. Chem.*, 19, 1761-1769.

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

Lin, Y., Geng, Z., Cai, H., Ma, L., Chen, J., Zeng, J., Pan, N., and Wang, X., 2012, Ternary Graphene-TiO_2-Fe_3O_4 Nanocomposite as Recollectable Photocatalyst With Enhanced Durability, *Eur. J. Inorg. Chem.*, 28. 4439-4444.

Liu, G.W.T., and Zhao, J., 1999, Photoassisted Degradation of Dye Pollutants. 8. Irreversible Degradation of Alizarin Red under Visible Light Radiation in Air-equilibrated Aqueous TiO_2 dispersions, *Environ. Sci. Technol*., 33, 2081-2087.

Liu, H., Jia, Z., Ji, S., Zheng, Y., Li, M., and Yang, H., 2011, Synthesis of TiO_2/SiO_2@Fe_3O_4 magnetic microspheres and their properties of photocatalytic degradation dyestuff, *Catal. Today.*, 175, 293-298.

Ljubas, D., Smoljanic, G., and Juretic, H., Degradation of Methyl Orange and Congo Red dyes by using TiO_2 nanoparticles activated by the solar-like radiation, *J. Enviro. Manage.*, 161, 83-191.

Makovec, D., Sajko, M., Selisnik, A., and Drofenik, M., 2012, Low-temperature synthesis of magnetically recoverable, superparamagnetic, photocatalytic, nanocomposite particles, *Mater. Chem. Phys.*, 136, 230-240.

Mascolo, M.C., Pei, Y., and Ring, T.A., 2013, Room Temperature Co-precipitation Synthesis of Magnetite Nanoparticles in a Large pH window with different Bases, *Materials.*, 6, 5549-5567.

Olya, M.E., and Pirkarami, A., 2015, On the positive role of doping Cu and N_2 onto TiO_2 in improving dye degradation: efficiency: providing reaction mechanism, *Korean J. Chem. En.,* 32(8), 1586-1597.

Pham, T.D., and Lee, B.K., 2014, Cu doped TiO_2/GF for Photocatalytic disinfection of Escherichia Coli in bioaerosols under visible ligt irradiation: Application and mechanism, *Appl. Surf. Sci.*, 296, 15-23.

Priya, M.H., and Madras, G., 2006, Kinetics of TiO_2-catalyzed Ultrasonic Degradation of Rhodamine Dyes, *Ind. Eng. Chem. Res*, 49, 913-921.

Song, K.Y., Kwon, Y.T., Choi, G.J., and Lee, W,I., 1999, Photocatalytic Activity of Cu/TiO_2 with oxidation State of Surface-loaded Copper, Bull. *Korean Chem. Soc*, 20, 957-960.

Susanti, A.D., 2014, Sintesis nanopartikel core shell $Fe_3O_4/SiO_2/TiO_2$ sebagai fotokatalis pada degradasi Brilliant Blue, *Tesis*, Magister Program, Chemistry Department, Faculty of Mathematics and Natural Science, Universitas Gadjah Mada, Yogyakarta.

Tayade, R.J., and Surolia, P.K., 2007, Photocatalytic Degradation of dyes and organic contaminant in water using nanocrystalline anatase and rutile TiO_2, *Sci Technol. Adv. Mater*., 8(6): 455-462.

Teng, Z., Su, X., Chen, G., Tian, C., Li, H., Ai, L., and Lu, G., 2012, Superparamagnetic high-magnetization composite microspheres with Fe_3O_4@SiO_2 core and highly crystallized mesoporous TiO_2 shell, *Colloids Surf A.,* 402, 60-65.

Trisunaryanti, W., 2015, Material Katalis dan Karakterisasinya, Gadjah Mada University Press, Yogyakarta.

Wei, Y., Han, B., Hu, X., Lin, Y., Wang, X., and Deng, X., 2012, Synthesis of Fe_3O_4 nanoparticles and their magnetic properties, *Procedia Engineering*, 27, 632-637.

Wu, C.H., and Chern, J.M., 2006, Kinetics of Photocatalytic Decomposition of Methylene Blue, *Ind. Eng. Chem. Res*, 45, 6450-6457.

Xin, B., Wang, P., Ding, D., Liu, J., Ren, Z., and Fu, H., 2008, Effect of surface species on Cu-TiO_2 photocatalytic activity, *Appl. Surf. Sci.*, 254, 2569-2574.

Xu, Y., and Langford, C.L., 1997, Photoactivity of Titanium dioxide supported on MCM-41, zeolite X and zeolite Y, *J. Phys. Chem. B*., 101, 3115-3121.

Xu, X., Ji, F., Fan, Z., and He., 2011, Degradation of Glyphosate in Soil Photocatalyzed by $Fe_3O_4/SiO_2/TiO_2$ under Solar Light, *Int. J. Environ. Res. Public Health*, 8, 1258-1270.

Xuan, S., Jiang, W., Gong, X., Yuan, H., and Chen, Z., 2009, Magnetically Separable Fe_3O_4/TiO_2 hollow spheres: fabrication and photocatalytic activity, *J. Phys. Chem*, 113, 553-558.

Yan, H., Zhao, T., Li, X., and Hun, C., 2015, Synthesis of Cu-doped nano-TiO_2 by detonation method, *Ceram Int.*, 41, 14204-14211.

Yang, D., Hu, J., and Fu, S., 2009, Controlled Synthesis of Magnetite-Silica Nanocomposites via a Seeded Sol-Gel Approach, *J. Phys. Chem. C*, 113, 7646-7651.

Yang, X.J., Wang, S., Sun, H., Wang, X., and Lian, J., 2015, Preparation and photocatalytic performance of Cu-doped TiO_2 nanoparticles, *Trans. Nonferrous Met.Soc. China*, 25, 504-509.

Yuan, Q., Li, N., Geng, W., Chi, Y., and Li, X., 2012, Preparation of magnetically recoverable $Fe_3O_4@SiO_2@$meso-TiO_2 nanocomposites with enhanced photocatalytic ability, *Mater. Res. Bull.*, 47, 2396-2402.

Yulianti, I.A., 2011, Sintesis Material Mesopori Ti-MCM-41 serta Pengujian Aktivitasnya Pada Fotodegradasi Metilen Biru, *Tesis*, Magister Program, Chemistry Department, Faculty of Mathematics and Natural Science, Universitas Gadjah Mada, Yogyakarta.

Zhan, J., Zhang, H., and Zhu, G., 2014, Magnetic photocatalyst of cenospheres coated with Fe_3O_4/TiO_2 core/shell nanoparticles decorated with Ag nanoparticles, *Ceram. Int.*, 40, 8547-8559.