

DAFTAR PUSTAKA

- Anonim, 2017, *Peraturan Menteri Kesehatan Republik Indonesia Nomor 32 Tahun 2017 Tentang Standar Baku Mutu Kesehatan Lingkungan Dan Persyaratan Kesehatan Air untuk Keperluan Higiene Sanitasi, Kolam Renang, Solus Per Aqua dan Pemandian Umum.*
- APHA, 1999, *Standard Methods for the Examination of Water and Wastewater*, American Public Health Association, USA.
- Arora, P., Sindhu, A., Dilbaghi, N. and Chaudhury, A., 2011, Biosensors As Innovative Tools For The Detection Of Food Borne Pathogens, *Biosens. Bioelectron.*, 28, 1–12.
- Baker, S.N. and Baker, G.A., 2010, Luminescent Carbon Nanodots : Emergent Nanolights Angewandte, *Nanotechnology*, 6726–6744.
- Bartelmess, J., Quinn, S.J., and Giordani, S., 2015, Carbon Nanomaterials: Multi-Functional Agents For Biomedical Fluorescence And Raman Imaging, *Chem. Soc. Rev.*, 44, 4672–4698.
- Baruah, S., Najam Khan, M., and Dutta, J., 2016, Perspectives and applications of nanotechnology in water treatment, *Environ. Chem. Lett.*, 14, 1–14.
- Bialvaei, A.Z. and Kafil, H.S., 2015, Colistin, Mechanisms and Prevalence of Resistance, *Curr. Med. Res. Opin.*, 1–54.
- Bourlinos, A.B., Stassinopoulos, A., Anglos, D., Zboril, R., Karakassides, M., and Giannelis, E.P., 2008, Surface Functionalized Carbogenic Quantum Dots, *Small*, 4(4), 455–458.
- Brown, R.S., Marcotte, E.J.P., Dunkinson, C.E., Aston, W.P., and Gallant, P.J., 2010, An automated detection technology for on-site *E. coli* and coliform bacteria monitoring, *Water Environ. Lab. Solut.*, 17, 1–5.
- Buzatu, D.A., Cooper, W.M., Summage-west, C., Sutherland, J.B., Williams, A.J., and Bass, D.A., 2013, Photobleaching With Phloxine B Sensitizer To Reduce Food Matrix Interference For Detection Of *Escherichia Coli* Serotype O157 : H7 In Fresh Spinach By Flow Cytometry, *Food Microbiol.*, 36, 416–425.
- Carmo, D.O., Cummings, C., Linardi, V.R., Dias, R.S., Souza, J.M.D.E., and Sena, M.J., 2004, A Case Study of a Massive Staphylococcal Food Poisoning Incident, *Foodborne Pathog. Dis.*, 1, 241–246.
- Carrillo-carrión, C., Simonet, B.M., and Valcárcel, M., 2011, Biosensors and Bioelectronics Colistin-functionalised CdSe/ZnS quantum dots as fluorescent probe for the rapid detection of *Escherichia coli*, *Biosens. Bioelectron.*, 26,

4368–4374.

- Chandra, S., Chowdhuri, A.R., Mahto, T.K., Samui, A., and Sahu, S.K., 2016, One-Step Synthesis Of Amikacin Modified Fluorescent Carbon Dots for The Detection Of Gram-Negative Bacteria Like: *Escherichia coli*, *RSC Advances*, 6, 1-28.
- Chandra, S., Kumar, T., Ray, A., and Das, B., 2017, Chemical One step Synthesis Of Functionalized Carbon Dots For The Ultrasensitive Detection Of *Escherichia coli* and iron (III), *Sensors Actuators B. Chem.*, 245, 835–844.
- Chen, Y., Kong, D., Liu, L., Song, S., Kuang, H., and Xu, C., 2015, Analytical Methods assay (ELISA) for Natamycin Residues In Foods Based On A Specific Monoclonal Antibody, *Anal. Methods*, 7, 3559–3565.
- Cho, I., Bhandari, P., Patel, P., and Irudayaraj, J., 2015, Membrane Filter Assisted Surface Enhanced Raman Spectroscopy For The Rapid Detection of *E. coli* O157 : H7 in Ground Beef, *Biosens. Bioelectron.*, 64, 171–176.
- Das, P., Bose, M., Ganguly, S., Mondal, S., Das, A.K., Banerjee, S., and Das, N.C., 2017, Green approach to Photoluminescent Carbon Dots For Imaging Of Gram-Negative Bacteria *Escherichia coli*, *Nanotechnology*, 28, 1-12.
- Deng, M., Wang, Y., and Jia, L., 2014, N-Methylimidazolium Modified Magnetic Particles-Assisted Highly Sensitive *Escherichia coli* Detection Based On Polymerase Chain Reaction And Capillary Electrophoresis, *Anal. Chim. Acta*, 827, 47–53.
- Dinç, S., Kara, M., Demirel Kars, M., Ayköl, F., Çiçekci, H., and Akkuş, M., 2017, Biocompatible Yogurt Carbon Dots: Evaluation Of Utilization For Medical Applications, *Appl. Phys. A Mater. Sci. Process.*, 123, 1–7.
- Domènech, B., Bastos-arrieta, J., Alonso, A., Macanás, J., Muñoz, M., and Muraviev, D.N., 2012, Bifunctional Polymer-Metal Nanocomposite Ion Exchange Materials, *Ion Exch. Technol.*, 35–72.
- Dong, Y., Chen, C., Zheng, X., Gao, L., and Cui, Z., 2012, One-step and High Yield Simultaneous Preparation Of Single- And Multi-Layer Graphene Quantum Dots From CX-72 Carbon Black, *J. Mater. Chem.*, 22, 8764–8766.
- Dong, Y., Lin, J., Chen, Y., Fu, F., Chi, Y., and Chen, G., 2014, Graphene Quantum Dots, Graphene Oxide, Carbon Quantum Dots And Graphite Nanocrystals In Coals, *Nanoscale*, 6, 7410–7415.
- Edberg, S., 2000, *Escherichia Coli* : The Best Biological Drinking Water Indicator for Public *Escherichia coli* : The Best Biological Drinking Water Indicator For Public Health Protection, *J. Appl. Microbiol.*, 88, 106–116.

- Evans, M.E., Feola, D.J., and Rapp, R.P., 2014, Polymyxin B Sulfate and Colistin : Old Antibiotics for Emerging Multiresistant Gram-Negative Bacteria, *Ann. Pharmacother.*, 33, 960–967.
- Fini, S., Niasari, S. M., and Ghanbari, D., 2018, Hydrothermal green Synthesis Of Magnetic Fe₃O₄-Carbon Dots By Lemon And Grape Fruit Extracts And As A Photoluminescence Sensor For Detecting of *E. coli* Bacteria, *Spectrochim. Acta-Part A Mol. Biomol. Spectrosc.*, 203, 481–493.
- Fujioka, R., Borja, M., Castro, J., and Morphey, K., 1999, Soil : The Environmental Source of *Escherichia coli* and *Enterococci* in Guam's Streams, *J. Appl. Microbiol.*, 85, 83–89.
- Fung, J., Fong, Y., Fun, S., and Muk, S., 2016, Biosensors and Bioelectronics A unique “turn-on” Fluorescence Signalling Strategy For Highly Specific Detection Of Ascorbic Acid using Carbon Dots As Sensing Probe, *Biosens. Bioelectron.*, 85, 844–852.
- Goryacheva, I.Y., Sapelkin, A. V., and Sukhorukov, G.B., 2017, Carbon nanodots: Mechanisms of Photoluminescence And Principles Of Application, *Trends Anal. Chem.*, 90, 27–37.
- Hahn, M.A., Tabb, J.S., and Krauss, T.D., 2005, Detection Of Single Bacterial Pathogens With Semiconductor Quantum Dots, *Anal. Chem.*, 77, 4861–4869.
- Haris, A., 2016, Sintesis dan Karakterisasi Nanopartikel Karbon Dot dari Daun Bambu Termodifikasi CBBA dengan Metode Pirolisis, *Skripsi*, Departemen Kimia Fakultas Sains dan Teknologi, Universitas Airlangga, Surabaya.
- Irving, A., Scott, P.L., and Chen, G.H., 2016, Solid-State Synthesis Of Self-Functional Carbon Quantum Dots For Detection Of Bacteria And Tumor Cells, *Sensors Actuators B. Chem.*, 1–17.
- Konwar, A., Gogoi, N., Majumdar, G., and Chowdhury, D., 2014, Green Chitosan-Carbon Dots Nanocomposite Hydrogel Film With Superior Properties, *Carbohydr. Polym.*, 1–28.
- Krysmann, M.J., Kellarakis, A., Dallas, P., and Giannelis, E.P., 2012, Formation Mechanism of Carbogenic Nanoparticles with Dual Photoluminescence Emission, *J. Am. Chem. Soc.*, 134, 747-750.
- Leatherbarrow, R.J. and Edwards, P.R., 1999, Analysis Of Molecular Recognition Using Optical Biosensors, *Curr. Opin. Chem. Biol.*, 3, 544–547.
- Li, H., He, X., Kang, Z., Huang, H., Liu, Y., and Liu, J., 2010, Water Soluble Fluorescent Carbon Quantum Dots And Photocatalyst Design, *Angew. Chemie-Int. Ed.*, 49, 4430–4434.

- Li, J., Milne, R.W., Nation, R.L., Turnidge, J.D., and Coulthard, K., 2002, Simple Method for Assaying Colistin Methanesulfonate in Plasma and Urine Using High-Performance Liquid Chromatography, *Antimicrob. Agents*, 46(10), 3304–3307.
- Li, J., Nation, R.L., Milne, R.W., Turnidge, J.D., and Coulthard, K., 2005, Evaluation of Colistin As An Agent Against Multi-Resistant Gram-Negative Bacteria, *Antimicrob. Agents*, 25, 11–25.
- Li, J.Y., Liu, Y., Shu, Q.W., Liang, J.M., Zhang, F., and Chen, X.P., 2017, One-pot Hydrothermal Synthesis Of Carbon Dots With Efficient Up- And Down-Converted Photoluminescence For The Sensitive Detection Of Morin In A Dual-Readout Assay, *Langmuir*, 33, 1043–1050.
- Li, Q., Ohulchanskyy, T.Y., Liu, R., Koynov, K., and Wu, D., 2010, Photoluminescent Carbon Dots as Biocompatible Nanoprobes for Targeting Cancer Cells in vitro, *J. Phys. Chem.*, 114, 4598–4601.
- Li, Y., Cheng, P., Gong, J., Fang, L., Deng, J., Liang, W., and Zheng, J., 2012, Amperometric Immunosensor For The Detection Of *Escherichia coli* O157 : H7 In Food Specimens, *Anal. Biochem.*, 421, 227–233.
- Lim, S.Y., Shen, W., and Gao, Z., 2014, Carbon Quantum Dots And Their Applications, *Chem. Soc. Rev.*, 1–20.
- Liqin, L., Yuanfang, L., Lei, Z., Yue, L., and Chengzhi, H., 2011, One-Step Synthesis Of Fluorescent Hydroxyls-Coated Carbon Dots With Hydrothermal Reaction And Its Application To Optical Sensing, *Sci. China Chem.*, 54, 1342–1347.
- Liu, H., Ye, T., and Mao, C., 2007, Fluorescent Carbon Nanoparticles Derived From Candle Soot, *Angew. Chemie-Int. Ed.*, 46, 6473–6475.
- Liu, Y., Zhou, Q., Yuan, Y., and Wu, Y., 2017, Hydrothermal Synthesis Of Fluorescent Carbon Dots From Sodium Citrate And Polyacrylamide And Their Highly Selective Detection Of Lead And Pyrophosphate, *Carbon.*, 115, 550–560.
- López, C., Zougagh, M., Algarra, M., Rodríguez-castellón, E., and Campos, B.B., 2015, Microwave-assisted Synthesis Of Carbon Dots And Its Potential As Analysis Of Four Heterocyclic Aromatic Amines, *Talanta*, 132, 845–850.
- Mehrotra, P., 2015, Biosensors and Their Applications, *J. Oral Biol. Craniofac. Res.*, 1–7.
- Morris, M.C., 2010, Fluorescent Biosensors of Intracellular Targets from Genetically Encoded Reporters to Modular Polypeptide Probes, *Cell Biochem. Biophys.*, 56, 19–37.

- Mosierboss, P.A., Sorensen, K.C., George, R.D., Sims, P.C., and O, A., 2017, Molecular and Biomolecular Spectroscopy SERS substrates Fabricated Using Ceramic Filters for The Detection Of Bacteria: Eliminating The Citrate Interference, *Spectrochim. Acta Part A Mol. Biomol. Spectrosc.*, 180, 161–167.
- Mukhopadhyay, B., Martins, M.B., Karamanska, R., Russell, D.A., and Field, R.A., 2009, Bacterial Detection Using Carbohydrate-Functionalised Cds Quantum Dots: A Model Study Exploiting *E. coli* Recognition Of Mannosides, *Tetrahedron Lett.*, 50, 886–889.
- Nandi, S., Ritenberg, M., and Jelinek, R., 2015, Bacterial Detection With Amphiphilic Carbon Dots, *Analyst*, 1–6.
- Nuryadin, B.W., Qulsum, U., Mahen, E.C.S., Nuryantini, A.Y., and Aliah, H., 2016, Synthesis And Optimization Of Carbon Nanoparticles (C-DOTS) As Absorber Materials For Solar Distillation Applications, *J. Pendidik. Fis. Indones.*, 12, 137–141.
- Peng, J., Gao, W., Gupta, B.K., Liu, Z., and Romero A., 2012, Graphene Quantum Dots Derived From Carbon Fibers, *Nano Lett.*, 12, 844–849.
- Peng, Z., Han, X., Li, S., Al-Youbi, A.O., Bashammakh, A.S., El-Shahawi, M.S., and Leblanc, R.M., 2017, Carbon dots: Biomacromolecule Interaction, Bioimaging And Nanomedicine, *Coord. Chem. Rev.*, 343, 256–277.
- Percival, S.L., Yates, M. V, Williams, D.W., Chalmers, R.M., and Gray, N.F., 2014, *Microbiology Of Waterborne Diseases Microbiological Aspects and Risks*, Second Edi., Elsevier, USA.
- Posniecek, T., Ettenauer, J., Zuser, K., Kellner, K., and Brandl, M., 2016, A Fluorescence Based Sensor System For Automated Detection Of *E. coli* In Water, *Procedia Eng.*, 168, 574–577.
- Prasannan, A. and Imae, T., 2013, One Pot Synthesis of Fluorescent Carbon Dots from Orange Waste Peels, *Ind. Eng. Chem. Res.*, 52, 15673–15678.
- Qiao, Z.A., Wang, Y., Gao, Y., Li, H., Dai, T., Liu, Y., and Huo, Q., 2010, Commercially Activated Carbon As The Source For Producing Multicolor Photoluminescent Carbon Dots By Chemical Oxidation, *Chem. Commun.*, 46, 8812–8814.
- Rabeharitsara, A.T., Andriamandroso, M.A., Randriana, N.R., Rakotosaona, R., Andrianarison, E., Razafimandefitra, A., and Robijaona, B., 2018, Amonium Di-Hydrogenocitrate and Mono-Hydrogenocitrate Synthesis by Citric Acid Neutralization with Ammonia Using Ethanol as Co-Solvent for the Crystallization–Swelling Test to Confirm Gases Emissions Capacity, *Am. J.*

Appl. Chem., 6, 6–14.

- Rahmayanti, H.D., Aji, M.P., and Sulhadi, 2015, Sintesis Carbon Nanodots Sulfur (C-Dots Sulfur) Dengan Metode Microwave, *Unnes Phys. J.*, 4, 1–8.
- Royani, I. and Monado, F., 2000, Studi Pengembangan Sistem-Pengukuran Photoluminescence Menggunakan Detektor CCD, *Jurnal Penelitian Sains*, 7, 32–40.
- Ruan, S., Zhu, B., Zhang, H., Chen, J., and Shen, S., 2014, A Simple One-Step Method For Preparation Of Fluorescent Carbon Nanospheres And The Potential Application In Cell Organelles Imaging, *J. Colloid Interface Sci.*, 422, 25–29.
- Shen, L.M. and Liu, J., 2016, New Development In Carbon Quantum Dots Technical Applications, *Talanta*, 156–157, 245–256.
- Shinde, D.B. and Pillai, V.K., 2012, Electrochemical Preparation Of Luminescent Graphene Quantum Dots From Multiwalled Carbon Nanotubes, *Chem. A. Eur. J.*, 18, 12522–12528.
- Sk, M.P. and Chattopadhyay, A., 2014, Induction Coil Heater Prepared Highly Fluorescent Carbon Dots As Invisible Ink And Explosive Sensor, *RSC Advances*, 4, 31994–31999.
- Skoog, D.A., Holler, F.J., and Crouch, S.R., 1998, *Principles of Instrumental Analysis*, Sixth Edit., Thomson Higher Education, USA.
- So, R.C., Sanggo, J.E., Jin, L., Diaz, J.M.A., Guerrero, R.A., and He, J., 2017, Gram-Scale Synthesis and Kinetic Study of Bright Carbon Dots from Citric Acid and *Citrus japonica* via a Microwave-Assisted Method, *Am. Chem. Soc.*, 2, 5196–5208.
- Stein, A. and Raoult, D., 2002, Colistin : An Antimicrobial for the 21st Century ?, *Clin. Infect. Dis.*, 35, 901–902.
- Suciningtyas, S.A., 2015, Daur Ulang Minyak Jelantah Untuk Material Fotokatalis Carbon Nanodots Penjernih Air, *Skripsi*, Departemen Fisika Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Negeri Semarang, Semarang.
- Sugiarti, S. and Darmawan, N., 2015, Synthesis Of Fluorescence Carbon Nanoparticles From Ascorbic Acid, *Indones. J. Chem.*, 15, 141–145.
- Suhartati, T., 2017, *Dasar-Dasar Spektrofotometri UV-Vis dan Spektrofotometri Massa Untuk Penentuan Struktur Senyawa Organik*, CV. Anugrah Utama Raharja, Bandar Lampung.

- Sun, X. and Lei, Y., 2017, Fluorescent Carbon Dots And Their Sensing Applications, *Trends Anal. Chem.*, 89, 163–180.
- Sun, Y.P., Zhou, B., Lin, Y., Wang, W., and Fernando, K.A.S., 2006, Quantum-sized Carbon Dots For Bright And Colorful Photoluminescence, *J. Am. Chem. Soc.*, 128, 7756–7757.
- Walsh, C.J., 2000, Urban impacts on the ecology of receiving waters : a framework for assessment, conservation and restoration, *Hydrobiologia*, 431, 107–114.
- Wang, B., Song, A., Feng, L., Ruan, H., Li, H., Dong, S., and Hao, J., 2015, Tunable Amphiphilicity And Multifunctional Applications Of Ionic-Liquid-Modified Carbon Quantum Dots, *Appl. Mater. Interfaces*, 7, 6919–6925.
- Wang, H., Nakata, E., Hamachi, I., 2009, Recent Progress In Strategies For The Creation Of Protein-Based Fluorescent Biosensors, *Chem. Bio. Chem.*, 10, 2560–2577.
- Wang, J., Wang, C.F., and Chen, S., 2012, Amphiphilic Egg-Derived Carbon Dots: Rapid Plasma Fabrication, Pyrolysis Process, And Multicolor Printing Patterns, *Angew. Chemie-Int. Ed.*, 51, 9297–9301.
- Wang, J. and Yau, S., 2014, Ultrasensitive And Rapid Detection Of *Escherichia Coli* O157 : H7 In Beef Juice Using Immunoassay Based On Field Effect Enzymatic Detection, *Anal. Methods*, 6, 5387–5391.
- Wang, N., Wang, Y., Guo, T., Yang, T., Chen, M., and Wang, J., 2016, Green Preparation Of Carbon Dots With Papaya As Carbon Source For Effective Fluorescent Sensing Of Iron (III) and *Escherichia coli*, *Biosens. Bioelectron.*, 85, 68–75.
- Wang, Y. and Hu, A., 2014, Carbon Quantum Dots: Synthesis, Properties And Applications, *J. Mater. Chem. C*, 2, 6921–6939.
- Wang, Y., Kalytchuk, S., Zhang, Y., Shi, H., Kershaw, S. V., and Rogach, A.L., 2014, Thickness-Dependent Full-Color Emission Tunability In A Flexible Carbon Dot Ionogel, *J. Phys. Chem. Lett.*, 5, 1412–1420.
- WHO, 2011, *Guidelines for Drinking-water Quality*, Fourth Edi., World Health Organization, Geneva.
- Wijayanti, R., 2013, Studi Karakteristik Fluoresensi, *J. Univ. Indones.*, 12, 303–307.
- Wildeboer, D., Amirat, L., Price, R.G., and Abuknesha, R.A., 2010, Rapid detection of *Escherichia coli* in Water Using A Hand-Held Fluorescence Detector, *Water Res.*, 44, 2621–2628.

- Wortmann, P., 2014, *Manual: Single Molecule Forster Resonance Energy Transfer*, Biophysics Coffee Corner, German.
- Xian-Wu, H., 2017, Carbon quantum Dots With Intrinsic Mitochondrial Targeting Ability For Mitochondria-Based Theranostics, *Nanoscale*, 1–39.
- Xu, X., Ray, R., Gu, Y., Ploehn, H.J., Gearheart, L., Raker, K., and Scrivens, W.A., 2004, Electrophoretic Analysis And Purification Of Fluorescent Sing-Walled Carbon Nanotube Fragments, *J. Am. Chem. Soc.*, 126, 12736–12737.
- Yang, L. and Li, Y., 2006, Simultaneous detection of *Escherichia coli* O157 : H7 and *Salmonella Typhimurium* Using Quantum Dots As Fluorescence Labels, *Analyst*, 394–401.
- Yang, X., Luo, Y., Zhu, S., Feng, Y., Zhuo, Y., and Dou, Y., 2014, One-Pot Synthesis Of High Fluorescent Carbon Nanoparticles And Their Applications As Probes For Detection Of Tetracyclines, *Biosens. Bioelectron.*, 56, 6–11.
- Yoshinaga, T., Iso, Y., and Isobe, T., 2018, Particulate, Structural, and Optical Properties of D-Glucose-Derived Carbon Dots Synthesized by Microwave-Assisted Hydrothermal Treatment, *J. Solid State Sci. Technol.*, 7(1), 3034–3039.
- Zhang, R. and Chen, W., 2014, Facile Synthesis And Application As A “Turn-Off” Fluorescent Probe For Detection Of Hg^{2+} Ions, *Biosens. Bioelectron.*, 55, 83–90.
- Zhang, R., Liu, Y., Yu, L., Li, Z., and Sun, S., 2013, Preparation Of High-Quality Biocompatible Carbon Dots By Extraction, With New Thoughts On The Luminescence Mechanisms, *Nanotechnology*, 24, 1-8.
- Zhang, Z., Yan, K., Yang, Q., Liu, Y., Yan, Z., and Chen, J., 2017, One-Pot Synthesis Of Fluorescent Nitrogen-Doped Carbon Dots With Good Biocompatibility For Cell Labeling, *Luminescence*, 32, 1488–1493.
- Zhu, C., Zhai, J., and Dong, S., 2012, Bifunctional Fluorescent Carbon Nanodots: Green Synthesis Via Soy Milk And Application As Metal-Free Electrocatalysts For Oxygen Reduction, *Chem. Commun.*, 48, 9367–9369.
- Zhu, S., Song, Y., Zhao, X., Shao, J., Zhang, J., and Yang, B., 2015, The Photoluminescence Mechanism In Carbon Dots (Graphene Quantum Dots, Carbon Nanodots, And Polymer Dots):Current State And Future Perspective, *Nano Res.*, 8, 355–381.