

DAFTAR PUSTAKA

- Alaqad, K., & Saleh, T. A. (2016). Gold and silver nanoparticles: synthesis methods, characterization routes and applications towards drugs. *Journal of Environmental & Analytical Toxicology*, 6(4). <https://doi.org/10.4172/2161-0525.1000384>
- Amaliyah, S., Pangesti, D. P., Masruri, M., Sabarudin, A., & Sumitro, S. B. (2020). Green synthesis and characterizzation of copper nanoparticles using (*Piper Retrofractum*) Vahl extract as bioreductor and capping Agent. *Heliyon*, 6(8). <https://doi.org/10.1016/j.heliyon.2020.e04636>
- Amin, F., Mahardika, M., & Fatimah, S. (2020). Sintesis dan karakterisasi nanopartikel emas menggunakan bioreduktor dari ekstrak daun berenuk. *Jurnal Ilmiah Teknik Kimia*, 4(2), 54. <https://doi.org/10.32493/jitk.v4i2.5101>
- Anonim. (2018a). *Analysis of PSL size standards with the SZ-100 AN197 application note*. www.horiba.com/scientific
- Anonim. (2018b). *Nanopartica SZ-100 series nanoparticle analyzer*. www.horiba.com/scientific
- Anonim. (2021). *Top 20 states in publication of nanotechnology articles*. Nanotechnology Articles. Retrieved from <https://statnano.com/news/45676/Top-20-States-in-Publication-ofNanotechnology-Articles>
- Dachriyanus. (2004). *Analisis struktur senyawa organik secara spektroskopi*. Lembaga Pengembangan Teknologi Informasi dan Komunikasi (LPTIK) Universitas Andalas.
- Delta, M., Muhammad Hendri, dan, Jurusan Ilmu Kelautan, M., Sriwijaya, U., & Ilmu Kelautan, J. (2021). Aktivitas antioksidan ekstrak daun dan kulit batang mangrove *sonneratia alba* di Tanjung Carat, Kabupaten Banyuasin, Provinsi Sumatera Selatan. *Maspuri Journal*, 13(2), 129–144.
- Dhamoon, R. K., Popli, H., Aggarwal, G., & Gupta, M. (2018). Particle size characterization-techniques, factors and quality-by-design approach. *International Journal of Drug Delivery*, 10(1), 1–11. <https://doi.org/10.5138/09750215.2204>
- Dipahayu, D., & Kusumo, G. G. (2021). Formulasi dan evaluasi nanopartikel ekstrak etanol daun ubi jalar ungu (*Ipomoea batatas*L.) varietas antin-3. *Jurnal Sains Dan Kesehatan*, 3(6), 781–785. <https://doi.org/10.25026/jsk.v3i6.818>
- Dontha, S. (2016). A review on antioxidant methods. *Asian Journal of Pharmaceutical and Clinical Research*, 9, 14–32. <https://doi.org/10.22159/ajpcr.2016.v9s2.13092>

- Engwa, G. A. (2018). Free radicals and the role of plant phytochemicals as antioxidants against oxidative stress-related diseases. In *Phytochemicals - Source of Antioxidants and Role in Disease Prevention*. InTech. <https://doi.org/10.5772/intechopen.76719>
- Fernandes, F. H. A., & Salgado, H. R. N. (2016). Gallic acid: review of the methods of determination and quantification. *Critical Reviews in Analytical Chemistry*, 46(3), 257–265. <https://doi.org/10.1080/10408347.2015.1095064>
- Hashim, U., Nadia, E., & Salleh, S. (2009). Nanotechnology development status in Malaysia: industrialization strategy and practices. *Nanoelectronics and Materials*, 2(1), 119–134.
- Huang, X., & El-Sayed, M. A. (2010). Gold nanoparticles: Optical properties and implementations in cancer diagnosis and photothermal therapy. *Journal of Advanced Research*, 1(1), 13–28. <https://doi.org/10.1016/j.jare.2010.02.002>
- Irianti, T., Sugiyanto, Nuranto, S., & Kuswandi, M. (2017). *Antioksidan*. <https://www.researchgate.net/publication/328979920>
- Jillavenkatesa, A., Dapkunas, S. J., & Lum Nisr, L.-S. H. (2001). *Particle Size Characterization*.
- Jing, Z., Li, M., Wang, H., Yang, Z., Zhou, S., Ma, J., Meng, E., Zhang, H., Liang, W., Hu, W., Wang, X., & Fu, X. (2021). Gallic acid-gold nanoparticles enhance radiation-induced cell death of human glioma U251 cells. *IUBMB Life*, 73(2), 398–407. <https://doi.org/10.1002/iub.2436>
- Joshita, D., Cholimi, S., Pujiyanto, A., Tenaga, B., Nasional, N., & Article, O. (2014). Antioxidant activity of gold nanoparticles using gum arabic as a stabilizing agent. *International Journal of Pharmacy and Pharmaceutical Sciences*, 6(7), 462–465. <https://www.researchgate.net/publication/288820160>
- Juliantoni, Y., Hajrin, W., & Subaidah, W. A. (2020). Nanoparticle formula optimization of juwet seeds extract (*Syzygium cumini*) using simplex lattice design method. *Jurnal Biologi Tropis*, 20(3), 416–422. <https://doi.org/10.29303/jbt.v20i3.2124>
- Junaidi, E., & Anwar, Y. A. S. (2018). Aktivitas antibakteri dan antioksidan asam galat dari kulit buah lokal yang diproduksi dengan tanase. *Alchemy Jurnal Penelitian Kimia*, 14(1), 131. <https://doi.org/10.20961/alchemy.14.1.11300.131-142>
- Khan, I., Saeed, K., & Khan, I. (2019). Nanoparticles: properties, applications and toxicities. *Arabian Journal of Chemistry*, 12(7), 908–931. <https://doi.org/10.1016/j.arabjc.2017.05.011>

- Kumar, B., Smita, K., Vizuete, K. S., & Cumbal, L. (2016). Aqueous phase lavender leaf mediated green synthesis of gold nanoparticles and evaluation of its antioxidant activity. *Biology and Medicine*, 8(3), 2–4. <https://doi.org/10.4172/0974-8369.1000290>
- Lee, K. X., Shameli, K., Yew, Y. P., Teow, S. Y., Jahangirian, H., Rafiee-Moghaddam, R., & Webster, T. J. (2020). Recent developments in the facile bio-synthesis of gold nanoparticles (AuNPs) and their biomedical applications. *International Journal of Nanomedicine*, 15, 275–300. <https://doi.org/10.2147/IJN.S233789>
- Lestari, G. A. D., Cahyadi, K. D., Esati, N. K., Suprihatin, I. E., & Ankamwar, B. (2022). Karakterisasi green synthesis nanopartikel emas (NP Au) menggunakan ekstrak air biji cengkeh. *Jurnal Kimia*, 122. <https://doi.org/10.24843/jchem.2022.v16.i01.p16>
- Manta, P., Singh, S. C., Deep, A., & Kapoor, D. N. (2021). Temperature-regulated gold nanoparticle sensors for immune chromatographic rapid test kits with reproducible sensitivity: A study. *IET Nanobiotechnology*, 15(3), 338–346. <https://doi.org/10.1049/nbt2.12024>
- Marino, T., Galano, A., & Russo, N. (2014). Radical scavenging ability of gallic acid toward OH and OOH radicals-reaction mechanism and rate constants from the density functional theory. *Journal of Physical Chemistry B*, 118(35), 10380–10389. <https://doi.org/10.1021/jp505589b>
- Martien, R., K Irianto, I. D., Farida, V., & Purwita Sari, D. (2012). Perkembangan teknologi nanopartikel sebagai sistem penghantaran obat technology developments nanoparticles as drug delivery systems. *Majalah Farmaseutik*, 8(1), 133.
- Masykuroh, A., & Abna, N. (2022). Uji aktivitas antioksidan nanopartikel perak (NPP) hasil biosintesis menggunakan ekstrak kulit buah jeruk kunci *Citrus Microcarpa bunge*. *Jurnal Biologi Makasar*, 7, 51–64. <https://journal.unhas.ac.id/index.php/bioma>
- Mittal, A. K., Chisti, Y., & Banerjee, U. C. (2013). Synthesis of metallic nanoparticles using plant extracts. *Biotechnology Advances*, 31(2), 346–356. <https://doi.org/10.1016/j.biotechadv.2013.01.003>
- Morigi, V., Tocchio, A., Bellavite Pellegrini, C., Sakamoto, J. H., Arnone, M., & Tasciotti, E. (2012). Nanotechnology in medicine: from inception to market domination. *Journal of Drug Delivery*, 2012, 1–7. <https://doi.org/10.1155/2012/389485>
- Muhammadi, F. M. (2020). Teknologi Nano di Indonesia. *Komisi Teknologi PPI Dunia No. 6 / 2020*.

- Musfiroh, E., Sri, D., & Syarif, H. (2012). Uji aktivitas peredaman radikal bebas nanopartikel emas dengan berbagai konsentrasi sebagai material antiaging dalam kosmetik. *UNESA Journal of Chemistry*, *1*(2), 18–25.
- Nuraeni, W., Daruwati, I., W Maria, E., & Sriyanti, M. E. (2013). Verifikasi kinerja alat partikel size analyzer (PSA) horiba LB-550 untuk pentuan distribusi ukuran nanopartikel. *Prosiding Seminar Nasional Sains Dan Teknologi Nuklir PTNBR-BATAN Bandung*, 04 Juli 2013.
- Nurviana, V. (2020). Potensi antioksidan sediaan nanopartikel ekstrak kernel biji limus (*Mangifera foetida* Lour). *Jurnal Farmasi Udayana*, 144. <https://doi.org/10.24843/jfu.2020.v09.i03.p02>
- Pertiwi, R. D., Djajadisastra, J., Mutalib, A., Pujiyanto, A., Teknologi Radioisotop dan Radiofarmaka-Badan Tenaga Nuklir Nasional, P., & Selatan, T. (2017). Pembuatan, karakterisasi dan uji in vitro nanopartikel emas berbasis konjugat gom arab-vinkristin. *Jurnal Ilmu Kefarmasian Indonesia*, *16*(1), 6–11.
- Pertiwi, R. D., Suwaldi, Setyowati, E. P., & Martien, R. (2019). Bio-nanoparticles: green synthesis of gold nanoparticles and assessment of biological evaluation. *International Journal of Applied Pharmaceutics*, *11*(6), 133–138. <https://doi.org/10.22159/ijap.2019v11i6.34826>
- Piccinno, F., Gottschalk, F., Seeger, S., & Nowack, B. (2012). Industrial production quantities and uses of ten engineered nanomaterials in Europe and the World. *Journal of Nanoparticle Research*, *14*(9), 3–11. <https://doi.org/10.1007/s11051-012-1109-9>
- Pillai, G. (2014). Nanomedicines for cancer therapy: an update of FDA approved and those under various stages of development. *Soj Pharmacy & Pharmaceutical Sciences*, *2*, 2–13. symbiosisonlinepublishing.com
- Poole, C. P., & Frank Owens, J. J. (2003). *Introduction to nanotechnology*. John Wiley & Sons, Inc., Hoboken. www.copyright.com.
- Prasdiantika, R., Susanto, & Kusumawardani, Y. (2019). *Teknologi nanomaterial hibrida untuk solusi pencemaran logam berat* (pertama, Vols. 978-623-02-0407-4). Buku Pendidikan Deepublish.
- Pujiyanto, A., Mujinah, Lubis, H., Witarti, Setiawan, H., Dede, Pony, Purnamasari, Sutriyo, & Mutalib, A. (2014). Penggunaan gum arab sebagai stabilisator nanopartikel emas (AuNP) untuk diagnosis dan terapi kanker. *Prosiding Seminar Nasional Sains Dan Pendidikan Sains*, *5*, 486–490.
- Riza Marjoni, M., & Devi Novita, A. (2015). Kandungan total fenol dan aktivitas antioksidan ekstrak air daun kersen (*Muntingia calabura* L.). *Jurnal Kedokteran YASRI*, *23*(3), 187–196.
- Setiawan, A. A., Safitri, M., Armiyani, D. T., Herianto, G., Marwanta, E., Farmasi, S. T., & Tangerang, M. (2021). Formulation and antioxidant effectivity test

- of single bulb black Garlic lotion with DPPH method (1,1-diphenyl-2-picrylhydrazyl). *Advances in Health Sciences Research*, 33, 1–7.
- Setiawan, H., Pujiyanto, A., Lubis, H., Mujinah, Kurniasih, D., Hambali, Ritawidya, R., & Mutalib, A. (2012). Pembuatan larutan HAuCl₄ dari logam emas (foil) sebagai bahan baku utama sintesis nanopartikel Au-Pamam dendrimer. *Prosiding Pertemuan Dan Presentasi Ilmiah - Penelitian Dasar Ilmu Pengetahuan Dan Teknologi Nuklir*, 1–7.
- Setyoningrum, T. M., Murni, W., Haryono, G., Maslakhah, R., Riris, D., & Murti, I. (2020). Pemurnian batuan emas ramah lingkungan menggunakan teknik sink and flotation dengan media tribromometana. *Jurusan Teknik Kimia*, 14–15.
- Suri, S. S., Fenniri, H., & Singh, B. (2007). Nanotechnology-based drug delivery systems. *Journal of Occupational Medicine and Toxicology*, 2(1), 2–6. <https://doi.org/10.1186/1745-6673-2-16>
- Tati Suhartati. (2013). *Dasar-Dasar spektrofotometri Uv-Vis dan spektrometri massa untuk penentuan struktur senyawa organik*. CV. Anugrah Utama Raharja.
- Thomas, S., Harshita, B. S. P., Mishra, P., & Talegaonkar, S. (2015). Ceramic nanoparticles: fabrication methods and applications in drug delivery. *Current Pharmaceutical Design*, 21(42), 6165–6188. <https://doi.org/10.2174/1381612821666151027153246>
- Thunugunta, T., Reddy, A. C., & Lakshmana Reddy, D. C. (2015). Green synthesis of nanoparticles: current prospectus. *Nanotechnology Reviews*, 4(4), 303–323. <https://doi.org/10.1515/ntrev-2015-0023>
- Vigderman, L., & Zubarev, E. R. (2013). Therapeutic platforms based on gold nanoparticles and their covalent conjugates with drug molecules. *Advanced Drug Delivery Reviews*, 65(5), 663–676. <https://doi.org/10.1016/j.addr.2012.05.004>
- Wahab, A. W., Karim, A., Asmawati, & Sutapa, I. W. (2018). Bio-synthesis of gold nanoparticles through bioreduction using the aqueous extract of *muntingia calabura* L. leaves. *Oriental Journal of Chemistry*, 34(1), 401–409. <https://doi.org/10.13005/ojc/340143>
- Walker, J. M. (2011). *Characterization of Nanoparticles Intended for Drug Delivery (Methods in Molecular Biology, Volume 697)* (E. McNiel Scott, Ed.). National Cancer Institute at Frederic. <https://doi.org/10.1007/978-1-60327-198-1>

- Wang, W., Chen, Q., Jiang, C., Yang, D., Liu, X., & Xu, S. (2007). One-step synthesis of biocompatible gold nanoparticles using gallic acid in the presence of poly-(N-vinyl-2-pyrrolidone). *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 301(1–3), 73–79. <https://doi.org/10.1016/j.colsurfa.2006.12.037>
- Wu, C.-C., Chen, D.-H., & Org, W. G. (2010). Facile green synthesis of gold nanoparticles with gum arabic as a stabilizing agent and reducing agent. In *Gold Bulletin* (Vol. 43). www.goldbulletin.org
- Yao, C., Zhang, L., Wang, J., He, Y., Xin, J., Wang, S., Xu, H., & Zhang, Z. (2016). Gold nanoparticle mediated phototherapy for cancer. *Journal of Nanomaterials*, 2016, 1–29. <https://doi.org/10.1155/2016/5497136>
- Yuslianti, E. R. (2018). *Prinsip dasar pemeriksaan radikal bebas & antioksidan*. CV Budi Utama.