

DAFTAR PUSTAKA

- Abuessawy, A.A., Fouda, A.F., Abdel-Rahman, A.A.-H., Hawata, M.A., and Hamad, N.A., 2023, A new modified heterocyclic-magnetite chitosan nanocomposite for efficient alizarin red dye removal: Adsorption analysis and antibacterial activity, *J. Polym. Environ.*, 8, 1-16.
- Aguilar-Ascon, E., 2019, Removal of *Escherichia coli* from domestic wastewater using electrocoagulation, *J. Ecol. Eng.*, 20(5), 42-51.
- Alaqad K. and Saleh, T.A., 2016, Gold and silver nanoparticles: synthesis methods, characterization routes and applications towards drugs, *J. Environ. Anal. Toxicol.*, 6(4), 1-10.
- Aliramaji, S., Zamanian, A., and Sohrabijam, Z., 2015, Characterization and synthesis of magnetite nanoparticles by innovative sonochemical method, *Procedia Mater. Sci.*, 11, 265-269.
- Alqahtani, F., Aleanizy, F., Tahir, E.E., Alhabib, H., Alsaif, R., Shazly, G., AlQahtani, H., Alsarra, I., Mahdavi, J., 2020, Antibacterial activity of chitosan nanoparticles against pathogenic *N. gonorrhoea*, *Int. J. Nanomed.*, 15, 7877-7887.
- Al-Manhel, A. J., Al-Hilphy, A. R. S., and Niamah, A. K., 2018, Extraction of chitosan, characterisation and its use for water purification, *J. Saudi Soc. Agric. Sci.*, 17(2), 186–190.
- Asey, M.N., Esa, M.N., and Abdullah, C.A.C., 2019, Synthesis and characterization of magnetic nanoparticles (MNP) and mnp-chitosan composites, *Malaysian J. Med. Health Sci.*, 4, 39-44.
- Asfaw, T., Negash, L., Kahsay, A., and Weldu, Y., 2017, Antibiotic resistant bacteria from treated and untreated hospital wastewater at Ayder Referral Hospital, Mekelle, North Ethiopia, *J. Adv. Microbiol.*, 7, 871-886.
- Asri, N.S., Maghfirah, A., and Batubara, N.I., 2021, Synthesis and characterization of soft magnetic materials $\text{Ni}_x\text{Zn}_{1-x}\text{Fe}_2\text{O}_4$ ($x = 0,2 - 0,8$) Lombok iron sand with co-precipitation method, *J. Technomaterial Phys.*, 3(1), 21-28.
- Azzahra, S., Parisa, N., Fatmawati, Amalia, E., and Larasati, V., 2019, Antibacterial efficacy of *Aloe vera* sap against *Staphylococcus aureus* and *Escherichia coli*, *Bio. Sc. Med.*, 3(2), 29-37.
- Badry, M.D., Wahba, M.A., Khaled, R.K., and Farghaly, A.A., 2015, Preparation and dielectric properties of magnetite/chitosan nanocomposite film, *Middle East J. Appl. Sci.*, 5(4), 940-944.
- Barajas, F.J.F., Acevedo, Z.C.S., and Pedraza, H.P., 2019, Synthesis and characterization of gold nanoparticles in solution using chitosan as reducing agent, *Respuestas*, 24 (2), 49-55.
- Bashir, S., Teo, Y.Y., Ramesh, S., Ramesh, K., Rizwan, M., and Rizwan, M., 2019, Synthesis and characterization of pH-sensitive n-succinyl chitosan

- hydrogel and its properties for biomedical applications, *J. Chil. Chem.*, 64(3), 4571-4574.
- Belgis, 2020, Industrial application of chitosan as promising material for wastewater purification: A review, *CSID J. Infrastruct. Dev.*, 3(1), 51-63.
- Bokuniaeva, A.O. and Vorokh, A.S., 2019, Estimation of particle size using the Debye equation and the Scherrer formula for polyphasic TiO₂ powder, *J. Phys. Conf. Ser.*, 1410, 1-6.
- Busyairi, M., Dewi, Y.P., dan Widodo, D.I., 2016, Efektivitas kaporit pada proses klorinasi terhadap penurunan bakteri *coliform* dari limbah cair Rumah Sakit X Samarinda, *Jurnal Manusia dan Lingkungan*, 23(2), 156-162.
- Catalano, E. and Di Benedetto, A., 2017, Characterization of physicochemical and colloidal properties of hydrogel chitosan-coated iron-oxide nanoparticles for cancer therapy, *J. Phys.: Conf. Ser.*, 841, 1-6.
- Cesar, S., Willis, L., and Huang, K.C., 2022, Bacterial respiration during stationary phase induces intracellular damage that leads to delayed regrowth, *iScience*, 25, 103765.
- Chacal, C., Akker, B., Young, F., Franco, F., Blackbeard, J., and Monis, P., 2016, Significance and implications for treatment and disinfection processes, *Adv. Appl. Microbiol.*, 97, 63-118.
- Chen, T.W., Kuo, S.M., Chang, S.J., and Kuan, T.C., 2004, Fabrication and evaluation of chitosan membranes for guided tissue regeneration, *Biomed. Eng. Appl. Basis Commun.*, 16, 259-264.
- Chung, Y.C. and Chen, C.Y., 2008, Antibacterial characteristics and activity of acid-soluble chitosan, *Bioresour. Technol.*, 99(8), 2806-2814.
- Deutzmann, J.S., Callander, G., Gu, W., Müller, A.L., McCully, A.L., Ahn, J.K., Kracke, F., and Spormann, A.E., 2022, Low-cost clamp-on photometers (ClampOD) and tube photometers (TubeOD) for online cell density determination, *Front. Microbiol.*, 12, 790576.
- Djajadisastra, J., Sutriyo, Purnamasari, P., dan Pujiyanto, A., 2014, Antioxidant activity of gold nanoparticles using gum arabic as a stabilizing agent, *Int. J. Pharm.*, 6(7), 462-465.
- Dzeranov, A., Bondarenko, L., Pankratov, D., Dzhardimalieva, G., Jorobekova, S., Saman, D., and Kydralieva, K., 2023, Impact of silica-modification and oxidation on the crystal structure of magnetite nanoparticles, *Magnetochemistry*, 9(18), 1-15.
- EL Knidri, H., Belaabed, R., El khalfaouy, R., Laajeb, A., Addaou, A., and Lahsini, A., 2017, Physicochemical characterization of chitin and chitosan produced from *parapenaeus longirostris* shrimp shell wastes, *JMES*, 8(10), 3648-3653.
- El-Sayed, I., X., Huangand, A.M., and El-Sayed, 2006, Selective laser photo-thermal therapy of epithelial carcinoma using anti-EGFR antibody conjugated gold nanoparticles, *Cancer Letter*, 2, 129-135.

- Erdem, B., Kariptas, E., Kaya, T., Tulumoglu, S., and Gorgulu, O., 2016, Factors influencing antibacterial activity of chitosan against *Aeromonas hydrophila* and *Staphylococcus aureus*, *Int. Curr. Pharm. J.*, 5(5), 45-48.
- Fadaka, A., Aluko, O., Awawu, S., and Theledi, K., 2021, Green synthesis of gold nanoparticles using pimenta dioica leaves aqueous extract and their application as photocatalyst, antioxidant, and antibacterial agents, *J. Multidiscip. Appl. Nat. Sci.*, 1(2), 78-88.
- Fahmiati, Nuryono, dan Suyanta, 2017, Characteristics of iron sand magnetic material from Bugel Beach, Kulon Progo, Yogyakarta, *IOP Conf. Ser.: Mater. Sci. Eng.*, 172, 1-8.
- Fatoni, A., Hariani, P.L., Hermansyah, and Lesbani, A., 2018, Synthesis and characterization of chitosan linked by methylene bridge and Schiff base of 4,4-Diaminodiphenyl Ether-Vanillin, *Indones. J. Chem.*, 18(1), 92-101.
- Fitria, S., Sidik, M.A., Buntat, Z., Nawawi, Z., Jambak, M.I., Kamarudin, N.N., dan Musa, F.N., 2019, Efficacy of dissolved ozone against *Staphylococcus aureus* and *Bacillus cereus* microorganism, *J. Ecol. Eng.*, 20(11), 76-81.
- Fuster, M. G., Montalbán, M.G., Carissimi, G., Lima, B., Feresin, G.E., Cano, M., Giner-Casares, J. J., López-Cascales, J.J., Enriz, R.D., and Vllora, G., 2020, Antibacterial effect of chitosan–gold nanoparticles and computational modeling of the interaction between chitosan and a lipid bilayer model, *Nanomaterials*, 10(2340), 1-18.
- Florez-Barajas, F.J., Sanchez-Acevedo, Z.C., and Peña-Pedraza, H., 2019, Synthesis and characterization of gold nanoparticles in solution using chitosan as reducing agent, *Respuestas*, 24(2), 49-55.
- Guarnieri, A., Triunfo, M., Scieuzo, C., Ianniciello, D., Tafi, E., Hahn, T., Zibek, S., Salvia, R., De Bonis, A., and Falabella, P., 2022, Antimicrobial properties of chitosan from diferent developmental stages of the bioconverter insect *Hermetia illucens*, *Scientific Reports*, 12, 8084.
- Guisbiers, G., Wang, Q., Khachatryan, E., Mimun, L.C., Mendoza-Cruz, R., Larese-Casanova, P., Webster, T.J., and Nash, K.L., 2016, Inhibition of *E. coli* and *S. aureus* with selenium nanoparticles synthesized by pulsed laser ablation in deionized water, *Int. J. Nanomedicine.*, 11, 3731–3736.
- Hameed, T., Ahmad, I., dan Ullah, S., 2020, Floristics pattern and biological characteristics of plants of Toormang Valley, Dir Lower, Hindukush Range, Pakistan, *Biosci. Res.*, 17, 2541-2550.
- Harris, L.G., Foster, S.J., and Richards, R.G., 2002, An introduction to *Staphylococcus aureus*, and techniques for identifying and quantifying *s. aureus* adhesins in relation to adhesion to biomaterials: Review, *Eur. cells mater.*, 4, 39-60.
- Hashem, A.H., Shehabeldine, A.M., Ali, O.M., and Salem, S.S, 2022, Synthesis of chitosan-based gold nanoparticles: Antimicrobial and wound-healing activities, *Polymers*, 14, 2293.

- Hench, L.L., 1998, Biomaterial: a forecast for the future, *Biomaterials*, 19, 1419-1423.
- Herizchi, R., Abbasi, E., Milani, M., and Akbarzadeh, A., 2016, Current methods for synthesis of gold nanoparticles, *Artif. Cells. Nanomed. Biotechnol.*, 44(2), 596-602.
- Hidayanto, F., Sutanto, H., Priyono, P., Hidayanto, E., Wibowo, A.A., and Triadyaksa, P., 2020, Synthesis and characterization of Fe₃O₄ nanoparticles from iron sand with sonochemical method, *Rasayan J. Chem.*, 13(4), 2340-2345.
- Hidayatulloh, A., Gumilar, J., dan Harlia, E., 2019, Potensi senyawa metabolit yang dihasilkan *Lactobacillus plantarum* ATCC 8014 sebagai bahan biopreservasi dan anti bakteri pada bahan pangan asal hewan, *JITP*, 7(2), 1-6.
- Hu, J., Chen, G., and Lo, I.M.C., 2020, Removal and recovery of Cr(VI) from wastewater by maghemite nanoparticles, *Water. Res.*, 39, 4528-4536.
- Ima, K., 2022, Types, characteristics, and facts about bacteria, *GJMR*, 10(1), 411-412.
- Ismail, A.M., Tiama, T.M., Farghaly, A., Elhaes, H., and Ibrahim, M.A., 2023, Assessment of the functionalization of chitosan/ iron oxide nanoparticles, *Biointerface Res. Appl. Chem.*, 13(6), 1-13.
- Jain, P. dan Pradeep, T., 2005, Potential of silver nanoparticle-coated polyurethane foam as an antibacterial water filter, *Biotechnol. Bioeng*, 90(1), 59-63.
- Jozanikohan, G. and Abarghooei, M.N., 2022, The *Fourier Transform Infrared Spectroscopy* (FTIR) analysis for the clay mineralogy studies in a clastic reservoir, *J. Pet. Explor. Prod. Technol.*, 12, 2093-2106.
- Jufri, R.F., 2020, The effect of environmental factors on microbial growth, *Journal La Lifesci*, 1(1), 12-17.
- Kaper, J.B., Nataro, J.P., and Mobley, H.L.T., 2004, Pathogenic *Escherichia coli*, *Microbiology*, 2, 123-140.
- Katas, H., Moden, N.Z., Lim, C.S., Celesistinus, T., Chan, J.Y., Ganasan, P., and Abdalla, S.S.I., 2018, Biosynthesis and potential applications of silver and gold nanoparticles and their chitosan-based nanocomposites in nanomedicine, *J. Nanotechnol.*, 2018, 1-13.
- Khalil, M.M.H., Sabry, D.Y., and Mahdi, H., 2017, Green synthesis of silver, gold, and silver-gold nanoparticles: Characterization, antimicrobial activity and cytotoxicity, *J. Sci. Res.*, 34(1), 553-574.
- Kloos, W.E. and Bannerman, T.L., 1994, Update on clinical significance of coagulase-negative *staphylococci*, *Clin. Microbiol. Rev.*, 7, 117-140.
- Kurnio, H., 2007, Coastal characteristics of iron sand deposits in Indonesia, *Indones. Min. J.*, 10(9), 27-38.

- Lacey, K.A., Geoghegan, J.A., and McLoughlin, R.M., 2016, The role of *Staphylococcus aureus* virulence factors in skin infection and their potential as vaccine antigens, *Pathogens*, 5(22), 1-17.
- Lestari, G.A.D., Cahyadi, K.D., dan Suprihatin, I.E., 2021, Characterization of gold nanoparticles from clove flower water extract and its antioxidant activity, *JUSAMI*, 22(2), 93-100.
- Lee, N.Y., Ko, W.C., and Hsueh, P.R., 2019, Nanoparticles in the treatment of infections caused by multidrug-resistant organisms, *Front. Pharmacol*, 10, 1153.
- Lomelí-Rosales, D.A., Zamudio-Ojeda, A., Reyes-Maldonado, O.K., López-Reyes, M.E., Basulto-Padilla, G.C., Lopez-Naranjo, E.J., Zuñiga-Mayo, V.M., and Velázquez-Juárez, G., 2022, Green synthesis of gold and silver nanoparticles using leaf extract of capsicum chinense plant, *Molecules*, 27, 1692.
- López, R.G., Pineda, M.G., Hurtado, G., de León, R.D., Fernández, S., Saade, H., and Bueno, D., 2013, Chitosan-coated magnetic nanoparticles prepared in one step by reverse microemulsion precipitation, *Int. J. Mol. Sci.*, 14, 19636-19650.
- Lu, L., Zhang, J., and Yang, X., 2018, Chemical simple and selective colorimetric detection of hypochlorite based on anti-aggregation of gold nanoparticles, *Sensor. Actuat. B-Chem*, 184, 189–195.
- Malathi, S., Balakumaran, M.D., Kalaichelvan, P.T., and Balasubramanian, S., 2013, Green synthesis of gold nanoparticles for controlled delivery, *Adv. Mat. Lett.*, 4(12), 933-940.
- Malathy, R., Sentilkumar, S.R.R., Prakash, A.R., Das, B.B., Ill-Min, C., Seung-Hyun, K., and Prabakaran, M., 2022, Use of industrial silica sand as a fine aggregate in concrete—an explorative study, *Buildings*, 12(1273), 1-26.
- Martha, A.A., 2022, Sintesis komposit partikel magnetik alam/kitosan terembankan nanopartikel emas sebagai antibakteri *Staphylococcus aureus* dan *Escherichia coli*, *Tesis*, Departemen Kimia FMIPA UGM, Yogyakarta.
- Martha, A.A., Permatasari, D.I., Dewi, E.R., Wijaya, N.A., Kunarti, E.S., Rusdiarso, B., dan Nuryono, N., 2022, Natural magnetic particles/chitosan impregnated with silver nanoparticles for antibacterial agents, *Indones. J. Chem.*, 22(3), 620 – 629.
- Martha, A.A., Sutarno, S., and Nuryono, N., 2022, One-Pot synthesis and characterization of gold nanoparticle-embedded natural magnetic particles/chitosan composite, *Solid State Phenom.*, 339, 11-17.
- Mikušová, V. and Mikuš, P., 2021, Advances in chitosan-based nanoparticles for drug delivery, *Int. J. Mol. Sci.*, 22(9652), 1-93.
- Mohan, C.O., Gunasekaran, S., and Ravishankar, C.N., 2019, Chitosan-capped gold nanoparticles for indicating temperature abuse in frozen stored products, *npj Sci. Food*, 3(2), 1-6.

- Montes-Duarte, G.G., Tostado-Blazquez, G., Castro, K.L.S., Araujo, J.R., Achete, C.A., Sanchez-Salas, J.L., and Campos-Delgado, J., 2021, Key parameters to enhance the antibacterial effect of graphene oxide in solution†, *RSC Adv.*, 11, 6509–6516.
- Muflikhah, Rusdiarso, B., Putra, E.G.R., dan Nuryono, 2017, Modification of silica coated on iron sand magnetic material with chitosan for adsorption of Au(III), *Indones. J. Chem.*, 17(2), 264-273.
- Musfiroh, E. dan Syarief, S.H., 2012, Uji aktivitas peredaman radikal bebas nanopartikel emas dengan berbagai konsentrasi sebagai material antiaging dalam kosmetik, *UNESA J. Chem.*, 1(2), 18-25.
- Muthuvel, A., Adavallan, K., Balamurugan, K., and Krishnakumar, N., 2014, Biosynthesis of gold nanoparticles using *Solanum nigrum* leaf extract and screening their free radical scavenging and antibacterial properties, *Biomed*, 4, 325-332.
- Nasef, S.M., Khozemy, E.E., and Mahmoud, G.A., 2023, pH-responsive chitosan/acrylamide/gold/nanocomposite supported with silver nanoparticles for controlled release of anticancer drug, *Sci. Rep.*, 13, 7818.
- Naqid, I. A., Balatay, A.A., Hussein, N.R., Saeed, K.A., Ahmed, H.A., and Yousif, S.H., 2020, Antibiotic susceptibility pattern of *Escherichia coli* isolated from various clinical samples in Duhok city, kurdistan region of Iraq, *Int. J. Infect.*, 7(2), 1-6.
- Negrea, P., Caunii, A., Sarac, I., and Butnariu, M., 2015, The study of infrared spectrum of chitin and chitosan extract as potential sources of biomass, *Dig. J. Nanomater. Biostructures*, 10(4), 1129-1138.
- Neldawati, Ratnawulan, dan Gusnedi, 2013, Analisis nilai absorbansi dalam penentuan kadar flavonoid untuk berbagai jenis daun tanaman obat, *PoP : Pillar of Physics*, 2, 76-83.
- Noralia, E. dan Maharani, D.K., 2013, Filtrasi ion logam Cr^{6+} dengan membrane komposit kitosan silika, *UNESA J. Chem.*, 2(1), 24-28.
- Nurayni, S. dan Nofitasari, R.N., 2018, Characterization of mineral content of iron sand at Depok Beach, Sigandu Beach and Muara Beach in Batang Regency, *J. Nat. Scien. & Math. Res.*, 4(1), 23-26.
- Nurliyana, M.R., Sahdan, M.Z., Wibowo, K.M., Muslihati, A., Saim, H., Ahmad, S.A., Sari, Y., and Mansor, Z., 2018, The detection method of *Escherichia coli* in water resources: a review, *IOP Conf. Series: Journal of Physics: Conf. Series*, 995, 1-12.
- Ofori, I., Maddila, S., Lin, J., and Jonnalagadda, S.B., 2018, Chlorine dioxide inactivation of *Pseudomonas aeruginosa* and *Staphylococcus aureus* in water: The kinetics and mechanism, *JWPE*, 26, 46-54.
- Prasdiantika, R. dan Susanto, 2020, Pencucian material magnetik pasir besi Lansilowo menggunakan larutan asam klorida, *Jurnal Teknosains*, 10(1), 75-85.

- Puspitasari, D.E., 2009, Dampak pencemaran air terhadap Kesehatan lingkungan dalam perspektif hukum lingkungan (studi kasus Sungai Code di Kelurahan Wirogunan Kecamatan Mergangsan dan Kelurahan Prawirodirjan Kecamatan Gondomanan Yogyakarta, *MIMBAR HUKUM*, 21(1), 23-34.
- Qian, S., Hou, R., Yuan, R., Zhou, B., Chen, Z., Chen, H., 2022, Removal of *Escherichia coli* from domestic sewage using biological sand filters: Reduction effect and microbial community analysis, *Environ. Res.*, 209, 112908.
- Rahmi, Fathurrahmi, Lelifajri, and Purnamawati, F., 2019, Preparation of magnetic chitosan using local iron sand for mercury removal, *Heliyon*, 5(5), 1-8.
- Ratnawati, R. dan Sugito, 2013, Proses desinfeksi pada pengolahan air limbah domestic menjadi air bersih sebagai air baku air minum, *Jurnal Teknik WAKTU*, 11(2), 1-7.
- Rattanawongwiboon, T., Soontaranon, S., Hemvichian, K., Lertsarawut, P., Laksee, S., and Picha, R., 2022, Study on particle size and size distribution of gold nanoparticles by TEM and SAXS, *Radiat. Phys. Chem.*, 191, 1-5.
- Regiel-Futyra, A., Kus-Liskiewicz, M., Sebastian, V., Irusta, S., Arruebo, M., Stochel, G., and Kyziol, A., 2015, Development of noncytotoxic chitosan-gold nanocomposites as efficient antibacterial materials, *Appl. Mater. Interfaces.*, 7, 1087–1099.
- Rhee, I., Hong, S., and Chang, Y., 2010, Chitosan-coated ferrite (Fe_3O_4) nanoparticles as a T_2 contrast agent for magnetic resonance imaging, *J. Korean Phys. Soc.*, 56(3), 868-873.
- Rianna, M., Sembiring, T., Situmorang, M., Kurniawan, C., Setiadi, E.A., Tetuko, A.P., Simbolon, S., Ginting, M., and Sebayang, P., 2018, Preparation and characterization of natural iron sand from Kata Beach, Sumatera Barat Indonesia with High Energy Milling (HEM), *J. Nat.*, 18(2), 97-100.
- Rosyada, A., Sunarharum, W.B., and Waziroh, E., 2019, Characterization of chitosan nanoparticles as an edible coating material, *IOP Conf. Ser.: Earth Environ. Sci.*, 230, 1-5.
- Safari, J. dan Javadian, L., 2015, Fe_3O_4 -chitosan nanoparticles as a robust magnetic catalyst for efficient synthesis of 5-substituted hydantoins using zinc cyanide, *Iran. J. Catal.*, 6(1), 57-64.
- Sajid, M. and Wasylika, P.J., 2020, Nanoparticles: Synthesis, characteristics, and applications in analytical and other sciences, *Microchem. J.*, 154, 1-53.
- San Andrés, E., del Prado, A., Mártel, I., González-Daz, G., Bravo, D., López, F.J., Fernández, M., Bohne, W., Röhrich, J., Selle, B., and Sieber, I., 2003, Bonding configuration and density of defects of SiO_2/H_2 thin films deposited by the electron cyclotron resonance plasma method, *J. Appl. Phys.*, 94(12), 7462-7469.
- Santhosh, P.B., Genova, J., and Chamati, H., 2022, Green synthesis of gold nanoparticles: An eco-friendly approach., *Chemistry*, 4, 345–369.

- Saputra, I.S., Suhartati, S., Yulizar, Y., dan Sudirman, 2020, Synthesis and characterization of gold nanoparticles (AuNPs) by utilizing bioactive compound of *Imperata cylindrica* (L.) Raeusch, *J. Kim. Terap. Indones.*, 22(1), 1-7.
- Sathiyaraj, S., Suriyakala, G., Gandhi, A.G., Babujanarthanam, R., Almaary, K.S., Chen, T., Kaviyarasu, K., 2021, Biosynthesis, characterization, and antibacterial activity of gold nanoparticles, *J. Infect. Public Health.*, 14, 1842–1847.
- Senthilkumar, S., Kashinath, L., Ashok, M., and Rajendran, A., 2017, Antibacterial properties and mechanism of gold nanoparticles obtained from *Pergularia daemia* Leaf Extract, *JNMR*, 13(1), 1-4.
- Shete, P.B., Patil, R.M., Thorat, N.D., Prasad, A., Ningthoujam, R.S., Ghosh, S.J., and Pawar, S.H., 2014, Magnetic chitosan nanocomposite for hyperthermia therapy application: Preparation, characterization and in vitro experiments, *Appl. Surf. Sci.*, 149-157.
- Sreelakshmi, K.R., Mohan, C.O., Remya, S., Raj, R., Rajasree, R., Pillai, D., Kumar, K.A., and Ravishankar, C.N., 2021, Time dependent synthesis of gold nanoparticles using chitosan as reducing agent: A spectroscopic approach, *Indian J. Fish.*, 68(2), 112-117.
- Su, C., Huang, K., Li, H.H., Lu, Y.G., and Zheng, D.L., 2020, Antibacterial properties of functionalized gold nanoparticles and their application in oral biology, *J. Nanomater.*, 2020, 1-13.
- Subedi, N., Lähde, A., Abu-Danso, E., Iqbal, J., and Bhatnagar, A., 2019, A comparative study of magnetic chitosan (Chi@Fe₃O₄) and graphene oxide modified magnetic chitosan (Chi@ Fe₃O₄GO) nanocomposites for efficient removal of Cr(VI) from water, *Int. J. Biol. Macromol.*, 1-42.
- Susilowati, E., Maryani, and Ashadi, 2018, Sunlight-assisted synthesis of colloidal silver nanoparticles using chitosan as reducing agent, *IOP Conf. Ser.: Mater. Sci. Eng.*, 349, 1-8.
- Teimuri-Mofrad, R., Hadi, R., Tahmasebi, B., Farhoudian, S., Mehravar, M., and Nasiri, R., 2017, Green synthesis of gold nanoparticles using plant extract: Mini-review, *Nanochem. Res.*, 2(1), 8-19.
- Thambirajoo, M., Maarof, M., Lokanathan, Y., Katas, H., Ghazalli, N.F., Tabata, Y., and Fauzi, M.B., 2021, Potential of nanoparticles integrated with antibacterial properties in preventing biofilm and antibiotic resistance, *Antibiotics*, 10, 1338.
- Thanayutsiri, T., Patrojanasophon, P., Opanasopit, P., Ngawhirunpat, T., Plianwong, S., and Rojanarata, T., 2020, Rapid synthesis of chitosan-capped gold nanoparticles for analytical application and facile recovery of gold from laboratory waste, *Carbohydr. Polym.*, 250, 1-10.
- Thanighaiarassu, RR., Sivamai, P., Devika, R., and Nambikkairaj, B., 2014, Green synthesis of gold nanoparticles characterization by using plant

- essential oil *Mentha piperita* and their antifungal activity against human pathogenic fungi, *J. Nanomed. and Nanotech.*, 5(5), 1-6.
- Turner S.M., Scott-Tucker A., Cooper L.M., and Henderson I.R., 2006, Weapons of mass destruction: virulence factors of the global killer enterotoxigenic *Escherichia coli*, *FEMS Microbiol Lett.*, 263(1), 10–20.
- Unsoy, G., Yalcin, S., Khodadust, R., Gunduz, G., and Gunduz, U., 2012, Synthesis optimization and characterization of chitosan-coated iron oxide nanoparticles produced for biomedical applications, *J. Nanopart. Res.*, 4(964), 1-13.
- Villamin, M.E. dan Kitamoto, Y., 2018, Synthesis of multifunctional clustered nano-Fe₃O₄ chitosan nanocomposite for biomedical applications, *AIP Conf. Proc.*, 1929.
- Warokka, K.E., Wuisan, J., dan Juliatri, 2016, Uji konsentrasi hambat minimum (KHM) ekstrak daun binahong (*Anredera cordifolia* Steenis) sebagai antibakteri terhadap pertumbuhan *Streptococcus mutans*, *egigi*, 4(2), 155-159.
- Wasik, E. and Chmielowski, K., 2019, Effectiveness of indicator bacteria removal in vertical flow filters filled with natural materials, *Environ. Prot. Eng.*, 45(2), 83-93.
- Yusof, N.A.A., Zain, N.M., and Pauzi, N., 2019, Synthesis of chitosan/zinc oxide nanoparticles stabilized by chitosan via microwave heating, *Bull. Chem. React. Eng.*, 14(2), 450-458.
- Yusoff, A.H.M., Salimi, M.N., and Jamlos, M.F., 2017, Dependence of lattice strain of magnetite nanoparticles on precipitation temperature and pH of solution, *J. Phys. Conf. Ser.*, 908, 1-5.
- Zam, Z.Z., Muin, F., and Fataruba, A., 2014, Identification of chitosan beads from coconut crab patani variety using Fourier Transform Infrared Spectroscopy (FTIR), *J. Phys.: Conf. Ser.*, 1832, 1-8.
- Zhang, T., Wang, L., He, X., Lu, H., and Gao, L., 2022, Cytocompatibility of pH-sensitive, chitosan-coated Fe₃O₄ nanoparticles in gynecological cells, *Front. Med.*, 9(799145), 1-12.
- Zhang, X.F., Liu, Z.G., Shen, W., dan Gurunathan, S., 2016, Silver nanoparticles: synthesis, characterization, properties, applications, and therapeutic approaches, *Int. J. Mol. Sci.*, 17, 1-34.
- Zheng, J., 2017, Inactivation of *Staphylococcus aureus* in water by pulsed spark discharge, *Sci. Rep.*, 7(10311), 1-8.
- Zhou, Y., Kong, Y., Kundu, S., Cirillo, J.D., and Liang, H., 2012, Antibacterial activities of gold and silver nanoparticles against *Escherichia coli* and *Bacillus Calmette-Guerin*, *J. Nanobiotechnology*, 10(19), 1-9.