

DAFTAR PUSTAKA

- Ahn, J. W. and Han, C., 2005, Synthesis of Single Phase Aragonite Precipitated Calcium Carbonate in $\text{Ca}(\text{OH})_2$ Na_2CO_3 NaOH Reaction System, *Korean J. Chem. Eng.*, 22(6), 852–856.
- Akbari, M., Zebarjad, S. M., Nategb, B., and Roubani, 2013, A Effect of Nano Silica on Setting Time and Physical Properties of Mineral Trioxide Aggregate, *J. Endod.*, 39(11), 1448–1451.
- Al-Thabaiti, S. A., Malik, M. A., Al-Youbi, A. A. O., Khan, Z., and Hussain, J. I., 2013, Effects of Surfactant and Polymer on the Morphology of Advanced Nanomaterials in Aqueous Solution, *Inter. J. Electrochem. Sci.*, 8(1), 204–218.
- Anigol, L. B., Charantimath, J. S. and Gurubasavaraj, P. M., 2017, Effect of Concentration and pH on the Size of Silver Nanoparticles Synthesized by Green Chemistry, *Org. Med. Chem. Inter. J. Biosynthesis*, 3(9), 1–5.
- Archegas, L. R. P., Caldas, D. B. M., Rached, R. N., Vieira, S., and Souza, E. M., 2008, Sorption and Solubility of Composites Cured with Quartz-Tungsten Halogen and Light Emitting Diode Light-Curing Units, *J. Contemp. Dent. Pract.*, 9(2), 073–080.
- Awati, P. S., Awate, S. V., Shah, P. P., and Ramaswamy, V., 2003, Photocatalytic Decomposition of Methylene Blue Using Nanocrystalline Anatase Titania Prepared by Ultrasonic Technique, *Catal. Commun.*, 4(8), 393–400.
- Aziz, M., 2010, Batu Kapur dan Peningkatan Nilai Tambah Serta Spesifikasi untuk Industri, *Jurnal Teknologi Mineral dan Batubara*, 3(6), 116–131.
- Azkiya, N. I. Prasetia, F., Putri, E. D., Rosiana, A., and Wardhani, S., 2016, Synthesis of Precipitated Calcium Carbonate (PCC) from Lime Rock Nature Methods Caustic Soda (Studies Concentration HNO_3), *Cakra Kimia* 17(1), 31–34.
- Bahador, A., Pourakbari, B., Bolhari, B., and Hashemi, F. B., 2015, In vitro Evaluation of the Antimicrobial Activity of Nanosilver-Mineral Trioxide Aggregate Against Frequent Anaerobic Oral Pathogens by a Membrane-Enclosed Immersion Test, *Biomed J.*, 38(1), 77–83.
- Bahador, A., Khaledi, A., and Ghorbanzadeh, R., 2013, Evaluation of Antibacterial Properties of Nano Silver Iranian MTA Against *Fusobacterium nucleatum*, *Pelagia Research Library*, 3(6), 88–94.

- Basturk, F. B., Nekoofar, M. H., Gunday, M., and Dummer, P. M. H., 2015, Effect of Varying Water-to-Powder Ratios and Ultrasonic Placement on the Compressive Strength of Mineral Trioxide Aggregate, *J. Endod.*, 41(4), 531–534.
- Becaro, A. A., Jonsson, C. M., Puti, F. C., Siqueira, M. C., Mattoso, L. H. C., Correa, D. S., and Ferreira, M. D., 2015, Toxicity of PVA-Stabilized Silver Nanoparticles to Algae and Microcrustaceans, *Environ. Nanotechnol. Monit. Manag.*, 3, 22–29.
- Bedier, M., 2017, Antibacterial Efficacy of Mineral Trioxide Aggregate Combined With Nano-Silver Additives, *Egypt. Dent. J.*, 63(2), 1833–1841.
- Berdonosov, S. S., Znamenskaya, I. V., and Melikhov, I. V., 2005, Mechanism of the Vaterite-to-Calcite Phase Transition Under Sonication, *Inorg. Mater.*, 41(12), 1308–1312.
- Bikharudin, A., 2019, *Sintesis dan Karakterisasi Semen White Mineral Trioxide Aggregate Berbahan Dasar Batu Kapur Sebagai Kandidat Bahan Medikamen Pulpotomi*. Universitas Gadjah Mada.
- Camilleri, J., 2007, Hydration Mechanisms of Mineral Trioxide Aggregate, *Int. Endod. J.*, 40(6), 462–470.
- Chen, X., Jin, X., Liu, Z., Ling, X., and Wang, Y., 2018, Experimental Investigation on the CaO/CaCO₃ Thermochemical Energy Storage with SiO₂ Doping, *Energy*, 155, 128–138.
- Cho, S. H. Park, J. K., Lee, S. K., Joo, S. M., Kim, I. H., Ahn, J. W., and Kim, H., 2007, Synthesis of Precipitated Calcium Carbonate Using a Limestone and Its Application in Paper Filler and Coating Color, *Mater. Sci. Forum*, 544–545, 881–884.
- Chu, D. H., Vinoba, M., Bhagiyalakshmi, M., Baek, I. H., Nam, S. C., Yoon, Y., Kim, S. H., and Jeong, S. K., 2013, CO₂ Mineralization into Different Polymorphs of CaCO₃ Using an Aqueous-CO₂ system, *RSC Adv.*, 3(44), 21722–21729.
- Collier, N. C., 2016, Transition and Decomposition Temperatures of Cement Phases - A Collection of Thermal Analysis Data, *Ceram. - Silik.*, 60(4), 338–343.
- Darvell, B. W., 2018, *Materials Science for Dentistry*. 10th edition. United Kingdom: Woodhead Publishing.

- El-Zahry, M. R., Mahmoud, A., Refaat, I. H., Mohamed, H. A., Bohlmann, H., and Lendl, B., 2015, Antibacterial Effect of Various Shapes of Silver Nanoparticles Monitored by SERS, *Talanta*, 138, 183–189.
- Estrela, C., Sydney, G. B., Bammann, L. L., and Júnior, F. O., 1995, Mechanism of Action of Calcium and Hydroxyl Ions of Calcium Hydroxide on Tissue and Bacteria, *Braz. Dent. J.*, 6(2), 85–90.
- Estrela, C., Pimenta, F. C., Ito, I. Y., and Bammann, L. L., 1999, Antimicrobial Evaluation of Calcium Hydroxide in Infected Dentinal Tubules, *J. Endod.*, 25(6), 416–418.
- Fa'izzah, M., Widjijono, W., Kamiya, Y., and Nuryono, N., 2020, Synthesis and Characterization of White Mineral Trioxide Aggregate Using Precipitated Calcium Carbonate Extracted from Limestone, *Key Eng. Mater.*, 840 KEM, 330–335.
- Fauzi, M. M., Sutarno, S., dan Suyanta, S., 2017, Pengaruh Waktu Sonikasi Selama Sintesis Terhadap Kristalinitas MCM-41 Berbasis Silikat, *Cakra Kimia*, 5(2), 58–66.
- Feng, Q. L., Wu, J., Chen, G. Q., Cui, F. Z., Kim, T. N., and Kim, J. O., 2000, A Mechanistic Study of the Antibacterial Effect of Silver Ions on *Escherichia coli* and *Staphylococcus aureus*, *J. Biomed. Mater. Research*, 52(4), 662–668.
- Formosa, L. M., Mallia, B., Bull, T., and Camilleri, J., 2012, The Microstructure and Surface Morphology of Radiopaque Tricalcium Silicate Cement Exposed to Different Curing Conditions, *Dent. Mater.*, 28(5), 584–595.
- Fridland, M. and Rosado, R., 2003, Mineral Trioxide Aggregate (MTA) Solubility and Porosity with Different Water-to-Powder Ratios, *J. Endod.*, 29(12), 814–817.
- Gao, M., Sun, L., Wang, Z., and Zhao, Y., 2013, Controlled Synthesis of Ag Nanoparticles with Different Morphologies and Their Antibacterial Properties, *Mater. Sci. Eng. C*, 33(1), 397–404.
- Gao, Y., Liu, L., and Zhang, Z., 2009, Mechanical Performance of Nano-CaCO₃ Filled Polystyrene Composite, *Acta Mech. Solida Sinica*, 22(6), 555–562.
- Ghasemi, N., Rahimi, S., Shahi, S., Milani, S. A., Rezaei, Y., and Nobakht, M., 2016, Compressive Strength of Mineral Trioxide Aggregate with Propylene Glycol, *Iran. Endod. J.*, 11(4), 325–328.

- Ghazvini, S. A., Tabrizi, M. A., Kobarfard, F., Baghban, A. A., and Asgary, S., 2009, Ion Release and pH of a New Endodontic Cement, MTA and Portland Cement, *Iran. Endod. J.*, 4(2), 74–78.
- Gu, S., Rasimick, B. J., Deutsch, A. S., and Musikant, B. L., 2006, Radiopacity of Dental Materials using a Digital X-ray System. *Dent. Mater.*, 22(8), 765–770.
- Güven, Y., Tuna, E. B., Dincol, M. E., and Aktoren, O., 2014, X-ray Diffraction Analysis of MTA-plus, MTA-angelus and Diaroot Bioaggregate, *Eur. J. Dent.*, 8(2), 211–215.
- Ha, W. N., Sohn, E. H., Park, I. J., and Lee, S. B., 2017, Mineral Trioxide Aggregate-A Review of Properties and Testing Methodologies, *Mater.*, 10(11), 1261.
- Hadiko, G., Han, Y. S., Fuji, M., and Takahashi, M., 2005, Synthesis of Hollow Calcium Carbonate Particles by the Bubble Templating Method, *Mater. Lett.* 59(19–20), 2519–2522.
- Han, L. and Okiji, T., 2013, Bioactivity Evaluation of Three Calcium Silicate-based Endodontic Materials, *Int. Endod. J.*, 46(9), 808–814.
- Haryono, A., Sondari, D., Harmami, S. B., and Randy, M., 2008, Synthesis of Silver Nanoparticle and Its Application, *Jurnal Riset Industri*, 2(3), 156–163.
- He, Y., Du, Z., Lv, H., Jia, Q., Tang, Z., Zheng, X., Zhang, K., and Zhao, F., 2013, Green Synthesis of Silver Nanoparticles by Chrysanthemum morifolium Ramat. Extract and Their Application in Clinical Ultrasound Gel, *Int. J. Nanomed.*, 8(5), 1809–1815.
- Holt, D. M., Watts, J. D., Beeson, T. J., Kirkpatrick, T. C., and Rutledge, R. E., 2007, The Anti-microbial Effect Against *Enterococcus faecalis* and the Compressive Strength of Two Types of Mineral Trioxide Aggregate Mixed with Sterile Water or 2% Chlorhexidine Liquid, *J. Endod.*, 33(7), 844–847.
- Islam, I., Kheng Chng, H. and Jin Yap, A. U., 2006, Comparison of the Physical and Mechanical Properties of MTA and Portland Cement, *J. Endod.*, 32(3), 193–197.
- Jonaidi-Jafari, N., Izadi, M., and Javidi, P., 2016, The Effects of Silver Nanoparticles on Antimicrobial Activity of ProRoot Mineral Trioxide Aggregate (MTA) and Calcium Enriched Mixture (CEM), *J. Clin. Exp. Dent.*, 8(1), 1–5.

- de Jonge, R., Takumi, K., Ritmeester, W. S., and Van Leusden, F. M., 2003, The Adaptive Response of *Escherichia coli* O157 in an Environment with Changing pH, *J. App. Microbiol.*, 94(4), 555–560.
- Khaira, K., 2011, Pengaruh Temperatur dan Waktu Kalsinasi Batu Kapur terhadap Karakteristik Precipitated Calcium Carbonate (PCC), *Jurnal Saintek*, 33–43.
- Kirboga, S., Oner, M., and Akyol, E., 2014, The Effect of Ultrasonication on Calcium Carbonate Crystallization in The Presence of Biopolymer, *J. Cryst. Growth*, 401, 266–270.
- Kokubo, T. and Takadama, H., 2006, How Useful is SBF in Predicting In Vivo Bone Bioactivity?, *Biomater.*, 27(15), 2907–2915.
- Kurdowski, W., 2014, *Cement and Concrete Chemistry*. 1st ed. London: Springer.
- Lailiyah, Q., Baqiya, M. A., and Darminto, D., 2012, Pengaruh Temperatur dan Laju Aliran Gas CO₂ pada Sintesis Kalsium Karbonat Presipitat dengan Metode Bubbling, *Jurnal Sains dan Seni ITS*, 1(1), B6–B10.
- Lazić, S., 1995, Microcrystalline Hydroxyapatite Formation from Alkaline Solutions, *J. Cryst. Growth*, 147, 147–154.
- Ledesma, A. F., Barceló Santana, F., Bucio, L., Arenas-Alatorre, J. A., Faraji, M., and Wintergerst, A. M., 2016, Elemental Chemical Composition and Phase Analysis by Means of PIXE, DSC, TGA, and DRX of MTA Angelus and a White Portland Cement, *Revista Odontológica Mexicana*, 20(3), 182–186.
- Lee, B. S., Lin, H. P., Chan, J. C. C., Wang, W. C., Hung, P. H., Tsai, Y. H., and Lee, Y. L., 2018, A Novel Sol-Gel-Derived Calcium Silicate Cement with Short Setting Time for Application in Endodontic Repair of Perforations, *Int. J. Nanomed.*, 13, 261–271
- Li, J., Rong, K., Zhao, H., Li, F., Lu, Z., and Chen, R., 2013, Highly Selective Antibacterial Activities of Silver Nanoparticles Against *Bacillus subtilis*, *J. Nanosci. Nanotechnol.*, 13(10), 6806–6813.
- Martinez, K. A., Kitko, R. D., Mershon, J. P., Adcox, H. E., Malek, K. A., Berkmen, M. B., and Slonczewski, J. L., 2012, Cytoplasmic pH Response to Acid Stress in Individual Cells of *Escherichia coli* and *Bacillus subtilis* Observed by Fluorescence Ratio Imaging Microscopy, *App. Environ. Microbiol.*, 78(10), 3706–3714.

- Massi, S., Tanomaru-Filho, M., Silva, G. F., Duarte, M. A. H., Grizzo, L. T., Buzalaf, M. A. R., and Guerreiro-Tanomaru, J. M., 2011, pH, Calcium Ion Release, and Setting Time of an Experimental Mineral Trioxide Aggregate-based Root Canal Sealer, *J. Endod.*, 37(6), 844–846.
- Mock, J. J., Barbic, M., Smith, D. R., Schultz, D. A., and Schultz, S., 2002, Shape Effects in Plasmon Resonance of Individual Colloidal Silver Nanoparticles, *J. Chem. Phys.*, 116(15), 6755–6759.
- Modiyya, P. R. and Patel, C. N., 2012, Synthesis and Screening of Antibacterial and Antifungal Activity of 5-Chloro-1,3-Benzoxazol-2(3 h)-One Derivatives, *Org. Med. Chem. Lett.*, 2(1), 1–10
- Moon, H. J., Lee, J. H., Kim, J. H., Knowles, J. C., Cho, Y. B., Shin, D. H., Lee, H. H., and Kim, H. W., 2018, Reformulated Mineral Trioxide Aggregate Components and The Assessments for Use as Future Dental Regenerative Cements, *J. Tissue Eng.*, 9. 1–10
- De Moura, M. R., Aouada, F. A., Mattoso, L. H. C., and Zucolotto, V., 2013, Hybrid Nanocomposites Containing Carboxymethylcellulose and Silver Nanoparticles, *J. Nanosci. Nanotech.*, 13(3), 1946–1950.
- Osiro, O. A., Kariuki, D. K., and Gathece, L. W., 2018, Composition and Particle Size of Mineral Trioxide Aggregate, Portland Cement and Synthetic Geopolymers, *East Afr. Med. J.*, 95(5), 1522–1534.
- Paiva, L., Fidalgo, T. K.S., da Costa, L. P., Maia, L. C., Balan, L., Anselme, K., Ploux, L., and Thiré, R.M.S.M., 2018, Antibacterial Properties and Compressive Strength of New One-Step Preparation Silver Nanoparticles in Glass Ionomer Cements (NanoAg-GIC), *J. Dent*, 69, 102–109.
- Patil, R. S., Kokate, M. R., Jambhale, C. L., Pawar, S. M., Han, S. H., and Kolekar, S. S., 2012, One-pot Synthesis of PVA-capped Silver Nanoparticles Their Characterization and Biomedical Application, *Adv. Nat. Sci. Nanosci. Nanotech.*, 3(1). 1–7
- Patra, N., Taviti, A. C., Sahoo, A., Pal, A., Beuria, T. K., Behera, A., and Patra, S., 2017, Green Synthesis of Multi-Metallic Nanocubes, *RSC Adv.*, 7(56), 35111–35118.

- Piñero, S., Camero, S., and Blanco, S., 2017, Silver Nanoparticles: Influence of The Temperature Synthesis on the Particles Morphology, *J. Phys. Conf. Ser.*, 786, 1–4.
- Pris, M. and Krzysztof, T., 2014, *Influence of Different Parameters on Wet Synthesis of Silver Nanoparticles*. University of Twente.
- Rai, M., Yadav, A., and Gade, A., 2009, Silver Nanoparticles as a New Generation of Antimicrobials, *Biotechnol. Adv.*, 27(1), 76–83.
- Ramakhrisna, C., Thenepalli, T., and Ahn, J. W., 2017, Evaluation of Various Synthesis Methods for Calcite-Precipitated Calcium Carbonate (PCC) Formation, *Korean Chem. Eng. Res.* 55(3), 279–286.
- Rao, Arathi, Rao, Ashwini, and Shenoy, R., 2009, Mineral Trioxide Aggregate - A Review, *J. Clin. Pediatr. Dent.*, 34(1). 1–8
- Reyes-Carmona, J. F., Felipe, M. S., and Felipe, W. T., 2009, Biomineralization Ability and Interaction of Mineral Trioxide Aggregate and White Portland Cement With Dentin in a Phosphate-containing Fluid, *J. Endod.*, 35(5), 731–736.
- Ribeiro, C. S., Kuteken, F. A., Hirata, R., and Scelza, M. F. Z., 2006, Comparative Evaluation of Antimicrobial Action of MTA, Calcium Hydroxide and Portland Cement, *J. App. Oral Sci.*, 14(5), 330–333.
- Roy, A., Bulut, O., Some, S., Mandal, A. K., and Yilmaz, M. D., 2019, Green Synthesis of Silver Nanoparticles: Biomolecule Nanoparticle Organizations Targeting Antimicrobial Activity, *RSC Adv.*, 9(5), 2673–2702.
- Saghiri, M. A., Ricci, J., Joupari, M. D., Aeinehchi, M., Ahmadi, K., and Bahramian, N., 2011, A Comparative Study of MTA Solubility In Various Media, *Iran. Endod. J.*, 6(1), 21–24.
- Samiei, M., Janani, M., Asl-Aminabadi, N., Ghasemi, N., Divband, B., Shirazi, S., and Kafili, K., 2017, Effect of the TiO₂ Nanoparticles on The Selected Physical Properties of Mineral Trioxide Aggregate, *J. Clin. Exp. Dent.*, 9(2), e191–e195.
- Santos, A. D., Moraes, J. C.S., Araújo, E. B., Yukimitu, K., and Valério Filho, W. V., 2005, Physico-Chemical Properties of MTA and a Novel Experimental Cement, *Int. Endod. J.*, 38(7), 443–447.

- Tanomaru, J. M. G., Storto, I., da Silva, G. F., Bosso, R., Costa, B. C., Bernardi, M. I. B., and Tanomaru-Filho, M., 2014, Radiopacity, pH and Antimicrobial Activity of Portland Cement Associated with Micro- and Nanoparticles of Zirconium Oxide and Niobium Oxide, *Dent. Mater. J.*, 33(4), 466–470.
- dos Santos, J. G., Ogasawara, T., and Corrêa, R. A., 2009, Synthesis of Mesoporous Titania in Rutile Phase with Pore-Stable Structure, *Braz. J.Chem. Eng.*, 26(3), 555–561.
- Saraya, M. E.-S. I. and Rokbaa, H. H. A. E.-L., 2017, Formation and Stabilization of Vaterite Calcium Carbonate by Using Natural Polysaccharide, *Adv. Nanoparticles*, 06, 158–182.
- Sarkar, N. K., Caicedo, R., Ritwik, P., Moiseyeva, R., and Kawashima, I., 2005, Physicochemical Basis of The Biologic Properties of Mineral Trioxide Aggregate, *J. Endod.*, 31(2), 97–100.
- Ševčík, R., Šašek, P., and Viani, A., 2018, Physical and Nanomechanical Properties of the Synthetic Anhydrous Crystalline CaCO₃ Polymorphs: Vaterite, Aragonite and Calcite, *J. Mater. Sci.*, 53(6), 4022–4033.
- Šileikaitė, A., Prosyčėvas, I., Puišo, J., Juraitis, A., and Guobienė, A., 2006, Analysis of Silver Nanoparticles Produced by Chemical Reduction of Silver Salt Solution, *Mater. Sci. (Medžiagotyra)*, 12(4), 1392–1320.
- da Silva, W. J., Souza, P. H. C., Rosa, E. A. R., Cury, A. A. D. B. C., and Rached, R. N., 2010, Mineral Trioxide Aggregate as Root Canal Filing Material: Comparative Study of Physical Properties, *Rev. odonto ciênc.*, 25(4), 386–390.
- Silvia, L., Zainuri, M., Suasmoro, S., Subagyo, B. A., Sukamto, H., Mashuri, M., dan Purwaningsih, S. Y., 2018, Analisis Kandungan Mineral Pasir Pantai di Kabupaten Pacitan dengan Metode Ekstraksi, in *Seminar Nasional Edusainstek*, 16–20.
- Siqueira, J. F. and Lopes, H. P., 1999, Mechanisms of Antimicrobial Activity of Calcium Hydroxide: A Critical Review, *Int. Endod. J.*, 32(5), 361–369.
- Sondi, I. and Salopek-Sondi, B., 2004, Silver Nanoparticles as Antimicrobial Agent: A Case Study on *E. coli* as a Model for Gram-negative Bacteria, *J. Colloid Interface Sci.*, 275(1), 177–182.

- Supriyanto, N. S. W., Sukarni, S., Puspitasari, P., and Permanasari, A. A., 2019, Synthesis and Characterization of CaO/CaCO₃ from Quail Eggshell Waste by Solid State Reaction Process, in *AIP Conference Proceedings*, 1–6.
- Taddei, P., Modena, E., Tinti, A., Siboni, F., Prati, C., and Gandolfi, M. G., 2011, Vibrational Investigation of Calcium-Silicate Cements for Endodontics in Simulated Body Fluids, *J. Mol. Struct.*, 993(1–3), 367–375.
- Tararushkin, E. V., Shchelokova, T. N., and Kudryavtseva, V. D., 2020, A Study of Strength Fluctuations of Portland Cement by FTIR Spectroscopy, *IOP Conference Series: Materials Science and Engineering*, 919(2).
- Torabinejad, M., Hong, C. U., McDonald, F., and Pitt Ford, T. R., 1995, Physical and Chemical Properties of A New Root-End Filling Material, *J. Endod.*, 21(7), 349–353.
- Torabinejad, M., Pitt Ford, T. R., McKendry, D. J., Abedi, H. R., Miller, D. A., and Kariyawasam, S. P., 1997, Histologic Assessment of Mineral Trioxide Aggregate as a Root-End Filling in Monkeys, *J. Endod.*, 23(4), 225–228.
- Torabinejad, M. and Chivian, N., 1999, Clinical Applications of Mineral Trioxide Aggregate, *J. Endod.*, 25(3).
- Tray, F. R., 2014, Bioactivity of Mineral Trioxide Aggregate and Mechanism of Action, in *Mineral Trioxide Aggregate in Dentistry: From Preparation to Application*, 61–85.
- Vaičiukynienė, D., Skripkiūnas, G., Daukšys, M., and Sasnauskas, V., 2013, Cement Hydration with Zeolite-based Additive, *Chemija*, 24(4), 271–278.
- Vazquez-Garcia, F., Tanomaru-Filho, M., Chávez-Andrade, G. M., Bosso-Martelo, R., Basso-Bernardi, M. I., and Guerreiro-Tanomaru, J. M., 2016, Effect of Silver Nanoparticles on Physicochemical and Antibacterial Properties of Calcium Silicate Cements, *Braz. Dent. J.*, 27(5), 508–514.
- Voicu, G., Bădănoiu, A. I., Andronescu, E., and Chifiruc, C. M., 2013, Synthesis, Characterization and Bioevaluation of Partially Stabilized Cements for Medical Applications, *Cent. Eur. J. Chem.*, 11(10), 1657–1667.
- Wang, W. H., Wang, C. Y., Shyu, Y. C., Liu, C. M., Lin, F. H., and Lin, C. P., 2010, Compositional Characteristics and Hydration Behavior of Mineral Trioxide Aggregates, *J. Dent. Sci.*, 5(2), 53–59.

- Wi, W. N. H., Rahim, Z. H. A., and Razak, F. A., 2013, Oral Microbes and Its Environment: A Review Article, *Esteem Academic Journal*, 9(2), 67–75.
- Widyastuti, S. and Kusuma, I. A. P., 2017, Synthesis and Characterization of CaCO₃ (Calcite) Nano Particles from Cockle Shells (*Anadara granosa* Linn) by Precipitation Method, in *AIP Conference Proceedings*, 1–5.
- Wu, D., Fan, W., Kishen, A., Gutmann, J. L., Fan, B., 2014, Evaluation of the Antibacterial Efficacy of Silver Nanoparticles Against *Enterococcus faecalis* Biofilm, *J. Endod.*, 40(2), 285–290.
- Yan, F. W., Zhang, S. F., Guo, C. Y., Zhang, X. H., Chen, G. C., Yan, F., and Yuan, G. Q., 2009, Influence of Stirring Speed on the Crystallization of Calcium Carbonate, *Cryst. Res. Technol.*, 44(7), 725–728.
- Yoshioka, S. and Kitano, Y., 1985, Transformation of Aragonite to Calcite Through Heating, *Geochem. J.*, 19, 245–249.