

DAFTAR PUSTAKA

- Acosta-Torres, L., Mendieta, I., Nunez-Anita, R. E., Cajero-Juarez, M., dan Castano, V.M., (2012) Cytocompatible antifungal acrylic resin containing silver nanoparticles for dentures. *Int. J. Nanomedicine*. 7:4777-4786.
- Al-Bakri, I.A., Harty, D., Al-Omari, W.M., Swain, M.V., Chrzanowski, W., dan Ellakwa, A., (2014) Surface characteristics and microbial adherence ability of modified polymethylmethacrylate by fluoridated glass fillers. *Aust. Dent. J.* 59(4): 482-489.
- Albukhaty, S., Al-Karagoly, H., dan Dragh, M.A., (2020) Synthesis of zinc oxide nanoparticles and evaluated its activity against bacterial isolates. *J. Biotech Res.* 11: 47-53.
- Aljafery, A., Al-Jubouri, O., Wally, Z., Almusawi, R., Abdulrudha, N.M dan Haider, J., (2022). The effects of incorporating Ag-Zn zeolite on the surface roughness and hardness of heat and cold cure acrylic resin. *J. Compos. Sci.* 6(3): 85.
- Alwan, S. dan Alameer, S. (2015) The effect of the addition of silanized nano tinania fillers on some physical and mechanical properties of heat cured acrylic denture base materials. *J Bagh College Dentistry*. 27(1): 86-91.
- Anusavice, K.J., Shen, C., dan Rawls, H.R., (2013) *Phillip's science of dental materials*, 12th ed. Missouri: Elsevier. pp. 106,107.
- Badri, I.A., (2021) Hubungan penggunaan gigi tiruan dengan kualitas hidup lansia di wilayah kerja puskesmas Batu Aji. *Jurnal SMART Keperawatan*. 8(1): 7-13.
- Bajunaid, S.O., Baras, B.H., Weir, M.D., dan Xu, H.H.K., (2022) Denture acrylic resin material with antibacterial and protein-repelling properties for the prevention of denture stomatitis. *Polymers*. 14(2): 1-11.
- Brandao, N.L., Portela, M.B., Maia, L.C., Antonio, A., Silva, V.L.M., dan Silva, E.M., (2018) Model resin composites incorporating ZnO-NP: activity against *S. mutans* and physicochemical properties characterization. *J Appl Oral Sci.* 26:1-10.
- Cao, L., Xie, X., Wang, B., Weir, M.D., Oates, T.W., Xu, H.H.K., Zhang, N., dan Bai, Y., (2018) Protein-repellent and antibacterial effects of a novel polymethyl methacrylate resin. *J. Dent.* 79: 39-45.

- Carniello, V., Peterson, B.W., van der Mei, H.C., dan Busscher, H.J., (2018) Physico-chemistry from initial bacterial adhesion to surface-programmed biofilm growth. *Adv. Colloid Interface Sci.* 261: 1-14.
- Carre, A. dan Mittal, K.L. (2011) *Surface and interfacial aspects of cell adhesion*. Boston: CRC Press. pp. 379, 382, 385, 386.
- Chen, X., Chen, J., dan Huang, N., (2022) The structure, formation, and effect of plasma protein layer on the blood contact materials: a review. *Biosurface and Biotribology*. 8(1):1-14.
- Choi, J., Uy, C., Ramani, R., dan Waddell, J., (2020) Evaluation of surface roughness, hardness and elastic modulus of nanoparticle containing light-polymerized denture glaze materials. *J Mech Behav Biomed Mater.* 103.
- Chowdhury, A., Kaurani, P., Narendara, P.U., Meena, S., Sharma, H., dan Gupta, A., (2021) Effect of addition of titanium oxide and zirconium oxide nanoparticles on the surface roughness of heat cured denture base resins: an in-vitro study. *SVOA-MST*. 36-43.
- Cierech, M., Kolenda, A., Grudniak, A.M., Wojnarowicz, J., Wozniak, B., Golas, M., Swoboda-Kopec, E., Lojkowski, W., dan Mierzwinska-Nastalska, E., (2016) Significance of polymethylmethacrylate (PMMA) modification by zinc oxide nanoparticles for fungal biofilm formation. *Int. J. Pharm.* 510(1): 323-335.
- Cierech, M., Osica, I., Kolenda, A., Wojnarowicz, J., Szmigiel, D., Lojkowski, W., Kurzydowski, K., Ariga, K., dan Mierzwinska-Nastalska, E., (2018) Mechanical and physicochemical properties of newly formed ZnO-PMMA nanocomposites for denture bases. *Nanomaterials*. 8(5): 1-13.
- Cierech, M., Wojnarowicz, J., Kolenda, A., Krawczyk-Balska, A., Prochwicz, E., Wozniak, B., Lojkowski, W., dan Mierzwinska-Nastalska, E., (2019) Zinc oxide nanoparticles cytotoxicity and release from newly formed PMMA-ZnO nanocomposites designed for denture bases. *Nanomaterials*. 9(9):1-12.
- Cross, B.W. dan Ruhl, S., (2018) Glycan recognition at the saliva oral microbiome interface. *Cell Immunol.* 333: 19-33.
- Departemen Kesehatan Republik Indonesia, (2019) Situasi kesehatan gigi dan mulut 2019. <https://www.kemkes.go.id/article/view/20030900005/situasi-kesehatan-gigi-dan-mulut-2019.html> (10/10/2022).

- Emami, E., Kabawar, M., Rompre, P.H., Feine, J.S., (2014) Linking evidence to treatment for denture stomatitis: a meta analysis of randomized controlled trials. *J. Dent.* 42, 99-106.
- Esmaeilzadeh, M., Divband, B., Ranjkesh, B., Azar, F.P., Sefidan, F.Y., Kachoei, M., dan Karimzadeh, B., (2022) Antimicrobial and mechanical properties of orthodontic acrylic resin containing zinc oxide and titanium dioxide nanoparticles supported on 4A zeolite. *Int. J. Dent.* 1-11.
- Federer, W., (2008) *Statistic and society: data collection and interpretation*. 2nd ed. New York: Marjel Deker. pp. 80.
- Gad., M., Abualsaud, R., Al-Thobity, A., Baba, N., dan Al-Harbi, F., (2020) Influence of addition of different nanoparticles on the surface properties of poly(methylmethacrylate) denture base material. *J. Prosthodont.* 29(5):422-428.
- Ghamgosar, M., Afsari, E., Tavangar, M., Darabi, F., Maleki, D., dan Davallo, R.T., (2022) Dental caries and plaque accumulation in patients undergoing removable orthodontic treatment: an epidemiologic study. *Journal of Dentomaxillofacial Radiology, Pathology and Surgery.* 11(3): 34-40.
- Giti, R., Zomorodian, K., Firouzmandi, M., Zareshahranadi, Z., dan Rahmannasab, S., (2021) Antimicrobial activity of thermocycled polymethyl methacrylate resin reinforced with titanium dioxide and copper oxide nanoparticles. *Int. J. Dent.* 1-8.
- Gopinath, S.C.B. dan Gang, F., (2021) *Nanoparticles in analytical and medical devices*, United States: Elsevier. pp. 8.
- Green, L.H. dan Goldman, E., (2021) *Practical handbook of microbiology*. 4th ed. Boca Raton: CRC Press. pp. 859.
- Gudkov, S.V., Burmistrov, D.E., Serov, D.A., Rebezov, M.B., Semeenova, A.A, dan Lisitsyn, A.B., (2021) A mini-review of antibacterial properties of ZnO nanoparticles. *Frontiers in Physics.* 9:1-12.
- Kamonkhantikul, K., Arksornnukit, M., dan Takashi, H., (2017) Antifungal, optical, and mechanical properties of polymethylmethacrylate material incorporated with silanized zinc oxide nanoparticles. *Int. J. Nanomedicine.* 12: 2353-2360.
- Kaur, L., Aras, M.A., Chitre, V., Nagarsekar, dan Ferreira, A.N., (2022) Evaluation and comparison of flexural strength, surface roughness and porosity percentage

of denture base resins incorporated with thymoquinone and silver nano-antimicrobial agents-an in vitro study. *J Oral Biol Craniofac Res.* 12(5):716-720.

Kim, J., Ryu, C., Ha, J., Lee, J., Kim, D., Ji, M., Park, C., Lee, J., Kim, D., dan Kim, H., (2020) Structural and quantitative characterization of mucin-type-O-glycans and the identification of O-glycosylation sites in bovine submaxillary mucin. *Biomolecules.* 10(4): 1-14.

Kruger, N.J., (2009) *The protein protocols handbook*. 3rd ed. US: Springer. pp. 17, 19, 20.

Kuroki, K., Hayashi, T., Sato, K., Asai, T., Okano, M., Kominami, Y., Takashi, Y., dan Kawai, T., (2010) Effect of self-cured acrylic resin added with an inorganic antibacterial agent on *Streptococcus mutans*. *Dent. Mater. J.* 29(3): 277-285.

Krzysciak, W., Jurczak, A., Koscielniak, D., Bystrowska, B., dan Skalniak, A., (2014) The virulence of *Streptococcus mutans* and the ability to form biofilms. *Eur J Clin Microbiol Infect Dis.* 33: 499-515.

Lallo da Silva, B., Abucafy, M.P., Manaia, E.B., Junior, J.A., Galdorfini, B., Chiari-Andreo, Pietro, R.C.L.R., dan Chiavacci, L.A., (2019) Relationship between structure and antimicrobial activity of zinc oxide nanoparticles : an overview. *Int. J. Nanomedicine.* 14: 9395-9410.

Madhu, A., Jaidka, S., Somani, R., Jawa, D., Hridya, V.G., Sabin, M., Bashir, A., Ahmad, L., dan Basu, P., (2021) Removable myofunctional appliances: an overview. *Int. J. Adv. Res.* 9(3): 561-580.

Mahamuni-Badiger, P.P., Patil, P.M., Badiger, M.V., Patel, P.R., Thorat-Gadgil, B.S., Pandit, A., dan Bohara, R.A., (2020) Biofilm formation to inhibition : role of zinc oxide-based nanoparticles. *Mater. Sci. Eng. C.* 108: 1-20

Maji, P., Choudhary, R.B., dan Majhi, M., (2016) Structural, electrical and optical properties of silane-modified ZnO reinforced PMMA matrix and its catalytic activities. *J. Non. Cryst. Solids.* 40-48.

Marsh, P. dan Martin, M.V. (2000) *Oral Microbiology*. 4th ed. Woburn : Wright. Pp. 41.

Marquetti, I. dan Desai, S. (2018) Molecular modeling the adsorption behavior of bone morphogenetic protein-2 on hydrophobic and hydrophilic substrates. <http://www.elsevier.com/open-access/userlicense/1.0/> (20/10/2022).

- Mayahara, M., Kataoka, R., Arimoto, T., Tamaki, Y., Yamaguchi, N., Watanabe, Y., Yamasaki, Y., dan Miyazaki, T., (2014) Effects of surface roughness and dimorphism on the adhesion of *Candida albicans* to the surface of resins :scanning electron microscope analyses of mode and number of adhesions, *J. Investig Clin Dent.* 5(4):307-312.
- McNab, R., Forbes, H., Handley, P.S., Loach, D.M., Tannock, G.W., dan Jenkinson, H.F., (1999). Cell wall-anchored CshA polypeptide (259 kilodaltons) in *Streptococcus gordonii* forms surface fibrils that confer hydrophobic and adhesive properties. *J. Bacteriol.* 181:3087-3095.
- Meirowitz, A., Rahmanov, A., Shlomo, E., Zelikman, H., Dolev, E., dan Sterer, N., (2021) Effect of denture base fabrication technique base fabrication technique on *Candida albicans* adhesion in vitro. *Materials.* 14(1):1-8.
- Melo, M.A., (2020) *Bacterial interactions with dental and medical materials.* Switzerland: MDPI. pp. 189.
- Mendes, C.R., Dilarri, G., Forsan, C.F., Sapata, V.M.R., Lopes, P.R.M., Moraes, P.B., Montagnolli, R.N., Ferreira, H., dan Bidoia, E.D., (2022) Antibacterial action and target mechanisms of zinc oxide nanoparticles against bacterial pathogens. *Scientific Reports.* 12(1):1-10.
- Miller, K.P., Wang, L., Benicewicz, B.C., dan Decho, A.W., (2015) Inorganic nanoparticles engineered to attack bacteria. *Chem. Soc. Rev.*
- Montoya, C., Kurlyec, J., Baraniya, D., Tripathi, A., Puri, S., dan Orrego, S., (2021) Antifungal effect of piezoelectric charges on PMMA dentures. *ACS Biomater. Sci. Eng.* 7(10): 4838-4846.
- Murat, S., Alp, G., Alatali, C., dan Uzun, M., (2018) In vitro evaluation of adhesion of *Candida albicans* on CAD/CAM PMMA-based polymers. *J Prosthodont.* 28(2):e873-e879.
- Nazoori, E.S. dan Kariminik, A. (2018) In vitro evaluation of antibacterial properties of zinc oxide nanoparticles on pathogenic prokaryotes. *J. Appl. Biotechnol. Rep.* 5(4): 162-165.
- Ofek, I. dan Doyle, R.J., (1994) *Bacterial adhesion to cells and tissues.* 1st ed. New York: Chapman & Hall. pp. 227.
- Olson, B.J.S.C. dan Markwell, J., (2007) *Assays for determination of protein concentration appendix 3A.* Hoboken: Wiley Interscience.

- Peixoto, I.T.A., Enoki, C., Ito, I.Y., Matsumoto, M.A.N., dan Nelson-Filho, P., (2011) Evaluation of home disinfection protocols for acrylic baseplates of removable of removable orthodontic appliances : a randomized clinical investigation. *Am. J. Orthod. Dentofacial Orthop.* 140(1): 51-57.
- Powers dan Wataha, (2017) *Dental materials foundations and applications*. Missouri: Elsevier. pp. 170.
- Pourhajibagher, M., Noroozian, M., Akhoundi, M.S.A., dan Bahador, A., (2022) Antimicrobial effects and mechanical properties of poly(methyl methacrylate) as an orthodontic acrylic resin containing curcumin-nisin-poly(L-lactic acid) nanoparticle: an in vitro study. *BMC Oral Health*. 22(1): 1-10.
- Radford, D.R., Sweet, S.P., Challacombe, S.J., dan Walterm J.D., (1998) Adherence of *Candida albicans* to denture-base materials with different surface finishes. *J. Dent.* 26:577-583.
- Raghupathi, K.R., Koodali, R.T., dan Manna, A.C., (2011) Size dependent bacterial growth inhibition and mechanism of antibacterial activity of zinc oxide nanoparticles. *Langmuir*. 27(7) : 4020-4028.
- Rajan, S., (2017) *Medical microbiology*. Chennai: MJP Publishers. pp. 141, 142.
- Ratnasari, D., Isnaeni, R.S., dan Fadilah, R.P.N., (2019) Kebersihan gigi tiruan lepasan pada kelompok usia 45-65 tahun. *Padjajaran J Dent Res Student*. 3(2): 87-91.
- Sakaguchi, R., Ferracane, J., dan Powers, J. (2019) *Craig's restorative dental materials*. Philadelphia: Elsevier. pp. 19,20,165,166,514.
- Samaranayake, L., (2018) *Essential microbiology for dentistry*. 5th ed. Poland: Elsevier. pp. 54,266.
- Santos, E.O., Oliveira, P.L.E., Mello, T.P., Santos, A.L.S., Elias, C.N., Sung-Hwan, C., dan Castro, A.C., (2022) Surface characterization and microbiological analysis of a vat-photopolymerization additive-manufacturing dental resin. *Materials*. 15: 1-13.
- Sarkar, A., Xu, F., dan Lee, S., (2019) Human saliva and model saliva at bulk to adsorbed phases-similarities and differences. *Adv. Colloid Interface Sci*. 273: 1-13.

- Shahabi, M., Fazel, S.M., dan Rangrazi, A., (2021) Incorporation of chitosan nanoparticles into a cold cure orthodontic acrylic resin : effects on mechanical properties. *Biomimetics*. 6(1):1-9.
- Shen, C., Rawls, H.P., dan Esquivel-Upshaw, J.F., (2021) *Phillips' science of dental materials*. 13th ed. St. Louis: Elsevier. pp. 233-237,242-248.
- Siddiqi, K.S., Rahman, A., Tajuddin, dan Husen, A., (2018) Properties of zinc oxide nanoparticles and their activity against microbes. *Nanoscale Res. Lett.* 13(141): 1-13.
- Sigma-Aldrich, (2006) Certificate of analysis nanoparticles zinc oxide. St. Louis: Sigma-Aldrich. pp. 1.
- Singh, S. dan Kumar, D., (2023), *Fabrication and machining of advanced materials and composites oppurtinities and challenges*. Boca Raton: CRC Press. pp.30.
- Sirelkhatim, A., Mahmud, S., Seeni, A., Kaus, N.H.M., Ann, L.C., Bakhori, S.K.M., Hasan, H., dan Mohamad, D., (2015) Review of zinc oxide nanoparticles : antibacterial activity and toxicity mechanism. *Nano-Micro Lett.* 7(3): 219-242.
- Sterzenbach, T., Helbig, R., Hannig, C., dan Hannig, M., (2020) Bioadhesion in the oral cavity and approaches for biofilm management by surface modifications. *Clin. Oral Investig.* 24: 4237-4260.
- Tang, E., Cheng, G., Ma, X., Pang, X., dan Zhao, Q., (2006) Surface modification of zinc oxide nanoparticle by and its dispersion in aqueous system. *Appl. Surf. Sci.* 252(14): 5227-5232.
- Taylor, R., Coulombe, S., Otanicar, T., Phelan, P., Gunawan, A., Wei, L., Rosengarten, G., Prasher, R. dan Tyagi, H., (2013) Small particles, big impacts: A review of the diverse applications of nanofluids. *J. Appl. Phys.* 113(1): 1-19.
- Utari, T.R. dan Putri, M.K., (2019) Orthodontic treatment needs in adolescents aged 13-15 years using orthodontic treatment needs indicators. *J. Indones. Dent.* 2(2): 49-55.
- Quave, C.L., Plano, L.R.W., Pantuso, T., dan Bennett, B.C., (2008) Effects of extracts from Italian medicinal plants on planktonic growth, biofilm formation and adherence of methicillin-resistant Staphylococcus aureus. *J. Ethnopharmacol.* 118(3):418-428.
- Vertex Dental, (2021) Vertex regular: conventional heat curing denture base material. [https://www.vertex-dental.com/vertex-regular-regular-crystal-clear\(7/11/2022\)](https://www.vertex-dental.com/vertex-regular-regular-crystal-clear(7/11/2022)).

- Villegas, N.A., Compagnucci, M.J.S., Aja, M.S., Rocca, D.M., Becerra, M.C., Molina, G.F., dan Palma, S.D., (2019) Novel antibacterial resin-based filling material containing nanoparticles for the potential one-step treatment of caries. *J. Healthc. Eng.* 1-8.
- Wagner, W.R., Skiyama-Elbert, S.E., Zhang, G., dan Yaszemski, M.J., (2020) *Biomaterials science an introduction to materials in medicine*. 4thed. United Kingdom: Elsevier.
- Wypych, G., (2016) *Handbook of fillers*. 4th ed. United States of America: ChemTec Publishing. pp. 244.
- Zhou, X. dan Li, Y., (2020) *Atlas of oral microbiology: from healthy microflora to disease*. 2nd ed. Singapore: Zheijang University Press. pp. 120, 121, 124.
- Zidan, S., Silikas, N., Alhotan, A., Haider, J., dan Yates, J., (2019) Investigating the mechanical properties of ZrO₂-impregnated PMMA nanocomposite for denture-based applications. *Materials*. 12(8):1-14