



DAFTAR PUSTAKA

- Abdillah, M. I., Farani, W., 2021, Prevalensi Maloklusi Anak Usia 9-11 Tahun di SD IT Insan Utama Yogyakarta, *IDJ*, 10(1): 26-31.
- Abdullah, A. A. A., Wahab, R. M. A., Ariffin, W. S. H., Z., 2011, Pattern of Crevicular Alkaline phosphatase During Orthodontic Tooth Movement: Leveling and Alignment Stage, *Sains Malaysiana*, 40(10): 1147-1151.
- Alhasyimi, A. A., Rosyida, N. F., Rihadini, M. S., 2019, Postorthodontic Relapse Prevention by Administration of Grape Seed (*Vitis vinifera*) Extract Containing Cyanidine in Rats, *Eur J Dent.*, 13(4): 629-634.
- Alhasyimi, A. A., Christnawati, C., Suparwiti, S., 2021, Effect of Carbonate Apatite Hydrogel- Advanced Platelet-Rich Fibrin Injection on Osteoblastogenesis during Orthodontic Relapse in Rabbits, *Eur J Dent.*, 15 (3): 412-419.
- Alhasyimi, A. A., Ana, I. D., Rosyida, N. F., 2023, The Use of Polymers to Enhance Post-Orthodontic Tooth Stability, *Polymers*, 15(1): 1-14.
- AlSwafeeri, H., ElKenany, W., Mowafy, M., Karam, S., 2019, Effect of Local Administration of Simvastatin on Orthodontic Tooth Movement in Rabbits, *AJO-DO*, 156(1): 75-86.
- Ansari, S., Ito, K., Hofmann, S., 2022, Alkaline Phosphatase Activity of Serum Affects Osteogenic Differentiation Cultures, *ACS Omega*, 7(15): 12724-12733.
- Amin, M. N., Permatasari, N., 2016, Aspek Biologis Pergerakan Gigi Secara Ortodonsi, *Stomatognatic (J. K. G. Unej)*, 13 (1): 22-27.
- Amoozegar, H., Ghaffari, A., Keramati, M., Ahmadi, S., Dizaji, S., Moayer, F., Akbarzadeh, I., Abazari, M., Razzaghi-abyaneh, M., Bakhshandeh, H., 2022, A Novel Formulation of Simvastatin Nanoemulsion Gel for Infected Wound Therapy: In Vitro and In Vivo Assessment, *JDDST*, 72.
- Angria, N., (2019), *Undur-undur (myrmecleon sp.) sebagai antidiabetic*, 1st ed. Ponorogo: Uwais Inspirasi Indonesia: hal 41-43.
- Alnajar, H. A. A. M., Groosh, D. H. A., 2021, The Effects of Calcitonin on Post Orthodontic Relapse in Rats, *Clin Exp Dent Res.*, 7(3): 293-301.
- Arifin, W. N., Zahiruddin,, W. M., 2017, Sample Size Calculation in Animal Studies Using Resource Equation Approach, *Malays J Med Sci*, 24 (5): 101-105.
- Aulia, S. S., Sopyan, I., Muchtaridi, 2016, Penetapan Kadar Simvastatin Menggunakan Kromatografi Cair Kinerja Tinggi (KCKT): Review, *Farmaka*, 14(4): 70-77.



Bahirrah, S., 2004, Pergerakan Gigi dalam Bidang Ortodontia dengan Alat Cekat, *e-USU Repository*: 1-8.

Bjering, R., Birkeland, K., Radunovic, V.V., 2015, Anterior Tooth Alignment: A Comparison of Orthodontic Retention Regimens 5 Years Posttreatment, *Angle Orthod.*, 85 (3): 353-359.

Chamani, S., Liberale, L., Mobasher, L., Montecucco, F., Rasadi, K. A., Jamialahmadi, T., Sahebkhar, A., 2021, The Role of Statins In The Differentiation and Function of Bone Cells, *Eur J Clin Invest.*, 51(7): 1-10.

Chavhan, S. S., Petkar, K. C., Sawant, K. K., 2013, Simvastatin Nanoemulsion for Improved Oral Delivery: Design, Characterisation, In Vitro and In Vivo Studies, *J Microencapsul.*, 30(8): 771-779.

Chen, G., Deng, C., Li, Yi-Ping, 2012, TGF- β and BMP Signaling in Osteoblast Differentiation and Bone Formation, *Int. J. Biol. Sci.*, 8(2): 272-288.

Chen, H., Khemtong, C., Yang, X., Chang, X., Gao, J., 2011, Nanonization Strategies for Poorly Water-Soluble Drugs, *Drug Discovery Today*, 16(7-8): 354-360.

Chen, P. Y., Sun, J. S., Tsuang, Y. H., Chen, M. H., Weng, P. W., Lin, F. H., 2010, Simvastatin Promotes Osteoblast Viability and Differentiation Via Ras/Smad/Erk/BMP-2 Signaling Pathway, *Nutrition Research*, 30: 191-199.

Dai, L., Xu, M., Wu, H., Xue, L., Yuan, D., Wang, Y., Shen, Z., Zhao, H., Hu, M., 2016, The Functional Mechanism of Simvastatin in Experimental Osteoporosis, *J Bone Miner Metab*, 34 (1): 23-34.

Djuwita, I., Pratiwi, I. A., Winarno, A., Sabri, M., 2012, Proliferasi dan Diferensiasi Sel Tulang Tikus dalam Medium Kultur In Vitro Yang Mengandung Ekstrak Batang Cissus quadrangular Salisb. (Sipatah-Patah), *J. Kedokt. Hewan*, 6(2): 75-80.

Dogramaci, E. J., Littlewood, S. J., 2021, Removable Orthodontic Retainers: Practical Considerations, *Br Dent J.*, 230 (11): 723-730.

Edrizal, Busman, Azmir, M. T. S., 2021, Evaluasi Relaps Pasca Perawatan Ortodonti Aktif: Scoping Review, *Menara ilmu*, 15(1): 43-54.

Erwansyah, E., Khadijah, 2020, Complication of Using an Orthodontic Retainer, *Makassar Dental Journal*, 9(1): 25-28.

Federer W. Statistics and society: data collection and interpretation. New York: Markel Dekker; 2008.

Frianto, F., Farjriaty, I., Riza, H., 2015, Evaluasi Faktor yang Mempengaruhi Perkawinan



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Gigi

Tikus Wistar

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Tikus Putih (*Rattus norvegicus*) Secara Kualitatif, 3(1): 1-4.

Han, G., Chen, Y., Hou, J., Liu, C., Chen, C., Zhuang, J., Meng, W., 2010, Effect of Simvastatin on Relapse and Remodeling of Periodontal Tissues After Tooth Movement in Rats, *AJO-DO*, 138(5): 550.e1-550.e7

Handayani, B., Brahmanta, A., 2018, Jumlah Osteoblas pada Daerah Tarikan dengan Pemberian Ekstrak Propolis Sebagai Pencegahan Relaps Ortodonti, *Jurnal Kedokteran Gigi*, 12(1): 28-33.

Hikmah, N., Profil Osteoblas dan Osteoklas Tulang Alveolar pada Model Tikus Diabetes Tahap Awal dengan Aplikasi Gaya Ortodonti yang Berbeda, *El-Hayah*. 2016; 5(2): 97-102.

Indratama, D., Yenita, 2019, Uji Efektivitas Antibiotik Ekstrak Daun Belimbing Wuluh (*Averrhoa bilimbi L.*) Terhadap Pertumbuhan *Staphylococcus aureus* Secara In Vitro, *Jurnal Pandu Husada*, 1(1): 61-65.

Ishikawa, K., Hayashi, K., 2021, Carbonate Apatite Artificial Bone, *Sci. Technol. Adv. Mater.*, 22(1): 683-694.

Islam, R. A., Busaidi, H. A., Zaman, R., Abidin, S. A. Z., Othman, I., Chowdury, E. H., 2020, Carbonate Apatite and Hydroxyapatite Formulated with Minimal Ingredients to Deliver SiRNA into Breast Cancer Cells In Vitro and In Vivo, *J. Funct. Biomater.*, 11(3): 1-28.

Jahanbin, A., Abtahi, M., Namdar, P., Heravi, F., Sadeghi, F., Arab, H., Shafaei, 2016, Evaluation of The Effects od Subgingival Injection of Simvastatin on Space Re-opening After Orthodontic Space Closure in Adults, *J Dent Res Dent Clin Dent Prospects*, 10(1): 3-7.

Kartal, Y., Kaya, B., 2019, Fixed Orthodontic Retainers: A Review, *Turk J Orthod.*, 32(2):110-4.

Kini U, Nandeesh UB. Physiology of Bone Formation, Remodeling, and Metabolism, *Radionuclide and Hybrid Bone Imaging*: 29-57.

Kitaura, H., Kimura, K., Ishida, M., Sugisawa, H., Kohara, H., Yoshimatsu, M., Yamamoto, T. T., 2014, Effect of Cytokines on Osteoclast Formation and Bone Resorption during Mechanical Force Loading of The Periodontal Membrane, *ScientificWorldJournal*, 2014; 1-7.

Kohli, N., Ho, S., Brown, S. J., Sawadkar, P., Sharma, V., Snow, M., Gareeta, E. G., 2018, Bone remodelling in VITRO: Where Are We Headed?: A review on the current understanding of physiological bone remodelling and inflammation and the strategies for testing biomaterials in vitro. *Bone*. 110: 38–46

Krissanti, I., Hanifa, R., Dwiwina, R. G., 2023, Efektivitas dan Pengaruh Kombinasi Anestesi Ketamine-Xylazine pada Tikus (*Rattus norvegicus*), *SEMABIO*, 18: 245-252.

Li, Y., Jacox, L. A., Little, S. H., Ko, C. C., 2018, Orthodontic Tooth Movement: The Biology and Clinical Implications, *Kaohsiung J Med Sci.*, 34(4): 207-214.

Littlewood, S.J., Kandasamy, S., Huang, G., 2017, Retention and Relapse in Clinical Practice, *Aust Dent J.*, 62(1): 51-57.

Maksmara, H., 2011, Remodeling Tulang Alveolar Untuk Reimplantasi dan Transplantasi Gigi Anterior Pada Kehilangan Tulang Hebat Paska Trauma, *Maj Ked Gr*, 18(1): 77-81.

Maarof, N. N.N., Abdulmalek, E., Fakurazi, S., Rahman, M. B. A., 2022, Biodegradable Carbonate Apatite Nanoparticle as a Delivery System to Promote Afatinib Delivery for Non-Small Cell Lung Cancer Treatment, *Pharmaceutics*, 14(6): 1-18.

MirHashemi, A. H., Afshaari, M., Alaeddini, M., Moghadam, S. E., Dehpour, A., Sheikhzade, S., Akhoundi, M. S. A., 2013, Effect of Atorvastatin on Orthodontic Tooth Movement in Male Wistar Rats, *J. Dent*, 10(6): 532-539.

Murti, B., 2011, *Validitas dan Reabilitas Pengukuran*, Matrikulasi Program Studi Doktoral, Surakarta, Fakultas Kedokteran Universitas Sebelas Maret.

Nasution, A. F., 2018, Pengaruh Pemberian Simvastatin Terhadap Kadar Alkalin Fosfatase Serum dan Jumlah Osteoblas pada Tikus Putih (*Rattus Norvegicus*) Strain Wistar Fraktur Femur dengan Dislipidemia, *Program Pendidikan Dokter Spesialis Bedah Universitas Syah Kuala*.

Najjar, H. E., 2023, Factors Affecting Retention and Relapse in Orthodontics, *Int J Community Med Public Health*, 10(8), 2946-2950.

Nugroho, S.W., Fauziyah, K.R., Sajuthi, D., Darusman, H.S., 2018, Profil Tekanan Darah Normal Tikus Putih (*Rattus norvegicus*) Galur Wistar dan Sprague-Dawley, *Acta Vet Indones*, 6(2): 32-37.

Oryan, A., Kamali, A., Moshiri, A., 2015, Potential Mechanisms and Applicatons of Statins on Osteogenesis: Current Modalities, Conflicts and Future Directions, *Journal of Controlled Realease*, 215: 12-24.

Pires, P. C., Fernandes, M., Nina, F., Gama, F., Gomes, M. F., Rodrigues, L. E., Meirinho, S., Silversstre, S., Alves, G., Santos, A. O., 2023, Innovative Aqueous Nanoemulsion Prepared by Phase Inversion Emulsification with Exceptional Homogeneity, *Pharmaceutics* 2023, 15(7): 1-21.



Priani, S. E., 2022, Kajian Pengembangan Sediaan Nanoemulsi Gel untuk Penghantaran Perekutan Agen Analgesik dan Antiinflamasi, Jurnal *Mandala Pharmacon Indonesia*, 8(2): 113-127.

Pudyani, P. S., Asmara, W., Ana, I. D., Utari, T. R., 2014, Alkaline Phospatase Expression during Relapse After Orthodontic Tooth Movement, *Dent. J. (Maj. Ked. Gigi)*, 47(1): 25-30.

Rosyida, N. F., (2020) Formulasi Hidrogel Gelatin-Simvastatin dengan Penambahan Surfaktan Polisorbat-80 dan Aplikasinya dalam Proses Remodeling Tulang Alveolar pada Periode Retensi Perawatan Ortodonti (Kajian in vivo pada Kelinci). Yogyakarta: Disertasi Fakultas Kedokteran Gigi. hal. 45, 126.

Rahayussalim, A.J., Supriadi, S., Marsetio, A.F., Pribadi, P.M., Suharno, B., 2019, The Potential of Apatite as an Alternative Bone Substitute Material, *Med J Indones.*, 28: 92-97.

Rutkovskiy, A., Stenslokkken, K.O., Vaage, I.J., 2016, Osteoblast Differentiation at a Glance, *Med Sci Monit Basic Res*, 22: 95-106.

Silva, R.F., Sasso, G.D.D.S., Cerri, E. S., Simoes, M.J., Cerri, P.S., 2015, Biology of Bone Tissue: Structure, Function, and Factors That Influence Bone Cells, *BioMed Research International*: 1-17.

Susilo, H., Mustamsir, E., Rai, W. G., 2022, Pengaruh Pemberian Simvastatin terhadap Kadar ALP (Alkali Fosfatase) pada Patah Tulang Femur Tikus Wistar, *JKB*, 32(2): 82-86.

Sutjiati R, Rubianto, Narmada IB, Sudiana IK, Rahayu RP. The inhibition of relapse of orthodontic tooth movement by naf administration in expressions of microscopic appearance of woven bone, *Int J Med Health Sci.* 2017; 11(10): 567–574.

Tan, J., Yang, N., Fu, X., Cui, Y., Guo, Q., Ma, T., Yin, X., Leng, H., Song, C., 2015, Single-Dose Local Simvastatin Injection Improves Implant Fixation via Increased Angiogenesis and Bone Formation in an Ovariectomized Rat Model, *Med Sci Monit*, 21: 1428-1439.

Vieira, G., Chaves, S.B., Ferreira, V.M.M., Freitas, K.M.S.D., Amorin, R.F.B., 2015, The Effect of Simvastatin on Relapse of Tooth Movement and Bone Mineral Density in Rats Measured by a New Method Using Microtomography, *Acta Cir Bras.*, 30(5): 319-327.

Vimalraj, S., 2020, Alkaline phosphatase: Structure, expression and its function in bone mineralization, *Elsevier*, 754: 144855.

Wakitani, S., Yokoi, D., Hidaka, Y., Nishino, K., 2017, The Differentially DNA-



methylated Region Responsible for Expression of Runt-related Transcription Factor 2, *J. Vet. Med. Sci.*, 79(2): 230-237.

Wawrzyniak, A., Balawender, K., 2022, Structural and Metabolic Changes in Bone, Animals, 12(15): 1-22.

Yang, F., Wang, X. X., Ma, D., Cui, Q., Zheng, D. H., Liu, X. C., Zhang, J., 2019, Effects of Triptolide on Tooth Movement and Root Resorption in Rats, *Drug Design, Development and Therapy*; 3963-3975.

Yulianita, R., Sopyan, I., Gazzali, A. M., Muchtaridi, M., 2021, A Novel Stability Study of Simvastatin Generic Tablet in Public Pharmacy Facilities of Purwakarta, Indonesia, *Indonesian J Pharm* 32(4): 548-562.

Yu, Y., Sun, J., Lai, W., Wu, T., Koshy, S., Shi, Z., 2014, Interventions for Managing Relapse of The Lower Front Teeth After Orthodontic Treatment, *The Cochrane Collaboration*: 1-17.