



DAFTAR PUSTAKA.

- Abdurrohman, M.M.S., Praptiningsih, R.S. and Yulistinawati, Y., (2022) The effect of brown algae (*Sargassum* sp.) gel on the number of osteoclasts in periodontitis rats. *Padjadjaran Journal of Dentistry*, 34(3):271-276.
- Afianti, H.P. dan Murrukmihadi, M., (2015) pengaruh variasi kadar gelling agent HPMC terhadap sifat fisik dan aktivitas antibakteri sediaan gel ekstrak etanolik daun kemangi (*Ocimum basilicum* L. forma citratum back.). *Majalah Farmaseutik*, 11(2): 307-315.
- Altan, B.A., Kara, I.M., Nalcaci, R., Ozan, F., Erdogan, S.M., Ozkut, M.M. dan Inan, S., (2013) Systemic propolis stimulates new bone formation at the expanded suture: a histomorphometric study. *The Angle Orthodontist*, 83(2): 286-291.
- Ahangari, Z., Naseri, M. and Vatandoost, F., (2018) Propolis: chemical composition and its applications in endodontics. *Iranian endodontic journal*, 13(3): 285-292.
- Assunção, M., Carneiro, V.M., Stefani, C.M. dan de Lima, C.L., (2021) Clinical efficacy of subgingivally delivered propolis as an adjuvant to nonsurgical periodontal treatment of periodontitis: A systematic review and meta-analysis. *Phytotherapy Research*, 35(10): 5584-5595.
- Ayu, K.V., (2018) Penurunan Kepadatan Tulang pada Resorpsi Tulang Alveolar Tikus Putih Jantan Galur Sprague Dawley yang Diinduksi LPS (Penelitian Pendahuluan). *PROCEEDING BOOK*, pp.83-89.
- Bathla, S., dan Bathla M., (2011) *Periodontics Revisited*. 1th ed. New Delhi : Jaypee Brothers Medical Publishers (P) Ltd. pp. 27,177.
- Berretta, A. A., Arruda, C., Miguel, F. G., Baptista, N., Nascimento, A. P., Marquele-Oliveira, F., Hori, J. I., Barud, H. S., Damaso, B., Ramos, C., Ferreira, R., dan Bastos, J.K., (2017) Functional Properties of Brazilian Propolis: From Chemical Composition Until the Market. Dalam: Waisundara, V. dan Shiomi., N. ed. *Superfood and Functional Food*. Rijeka: InTech. pp. 57–58
- Bhattarai, G., Poudel, S.B., Kook, S.H. dan Lee, J.C., (2016) Resveratrol prevents alveolar bone loss in an experimental rat model of periodontitis. *Acta biomaterialia*, 29: 398-408.
- Dahiya, P., Kamal, R., Gupta, R., Bhardwaj, R., Chaudhary, K. dan Kaur, S., (2013) Reactive oxygen species in periodontitis. *Journal of Indian Society of Periodontology*, 17(4): 411-416.
- Dinyati, M., dan Adam, A. M., (2016) Kuretase gingiva sebagai perawatan poket periodontal. *Makasar Dent J*. 5(2): 58-64.
- Ekeku, S.O. dan Chin, K.Y., (2021) Application of Propolis in Protecting Skeletal and Periodontal Health—A Systematic Review. *Molecules*, 26(11): 1-16.



- Elkhenany, H., El-Badri, N. dan Dhar, M., (2019) Green propolis extract promotes in vitro proliferation, differentiation, and migration of bone marrow stromal cells. *Biomedicine & Pharmacotherapy*, 115: 108861.
- Fatimatuzzahro, N., Prasetya, R.C. dan Puri, S., (2021) Potensi ekstrak sutra laba-laba Argiope modesta 5% sebagai bahan antiinflamasi pada luka gingiva tikus wistar Potential of 5% spider silk extract of Argiope modesta as an anti-inflammatory agent in the gingival wound of Wistar rats. *Padjadjaran Journal of Dental Researchers and Students*, 5(2): 133-139.
- Ferreira, M.C., Dias-Pereira, A.C., Branco-de-Almeida, L.S., Martins, C.C. and Paiva, S.M., 2017. Impact of periodontal disease on quality of life: a systematic review. *Journal of periodontal research*, 52(4), pp.651-665.
- Franchin, M., Freires, I.A., Lazarini, J.G., Nani, B.D., da Cunha, M.G., Colón, D.F., de Alencar, S.M. dan Rosalen, P.L., (2018) The use of Brazilian propolis for discovery and development of novel anti-inflammatory drugs. *European journal of medicinal chemistry*, 153: 49-55.
- Graziani, F., Karapetsa, D., Alonso, B. dan Herrera, D., (2017) Nonsurgical and surgical treatment of periodontitis: how many options for one disease?. *Periodontology 2000*, 75(1): 152-188.
- Guvva, S., Patil, M.B. dan Mehta, D.S., (2017) Rat as laboratory animal model in periodontology. *International Journal of Oral Health Sciences*, 7(2): 68-75.
- Halim, E., Hardinsyah, H., Sutandyo, N., Sulaeman, A., Artika, M. dan Harahap, Y., (2012) Kajian bioaktif dan zat gizi propolis Indonesia dan Brasil. *Jurnal Gizi dan Pangan*, 7(1): 1-7.
- Herawati, D., Anggraeni, D. dan Damayanti, A.R., (2020) Effect of Ozonated Olive Oil in Topical Application towards Osteoblast Number and Angiogenesis of Alveolar Bone in Periodontitis Healing Process (in vivo study in Sprague dawley Rats). *Majalah Obat Tradisional*, 25(1): 59-66.
- Hienz, S.A., Paliwal, S. dan Ivanovski, S., (2015) Mechanisms of bone resorption in periodontitis. *Journal of immunology research*, 2015.
- Huang, S., Zhang, C.P., Wang, K., Li, G.Q. dan Hu, F.L., (2014) Recent advances in the chemical composition of propolis. *Molecules*, 19(12): 19610-19632.
- Jeong-Hyon, K., Bon-Hyuk, G., Sang-Soo, N., dan Yeon-Cheol, P., (2020) A Review of Rat Models of Periodontitis Treated with Natural Extracts. *Journal of Traditional Chinese Medical Sciences*. 7(2020): 95-103.
- Kementerian Kesehatan RI (2019) *Laporan Nasional RISKESDAS 2018*. Badan Penelitian dan Pengembangan Kesehatan. pp. 195,204.
- Kim, J.M., Lin, C., Stavre, Z., Greenblatt, M.B. dan Shim, J.H., (2020) Osteoblast-osteoclast communication and bone homeostasis. *Cells*, 9(9):1-14.
- Kim, J.H. and Kim, N., 2016. Signaling pathways in osteoclast differentiation. *Chonnam medical journal*, 52(1):12-17.



- Kumar, M., Prakash, S., Lorenzo, J.M., Chandran, D., Dhumal, S., Dey, A., Senapathy, M., Rais, N., Singh, S., Kalkreuter, P. dan Damale, R.D., 2022. Apitherapy and Periodontal Disease: Insights into In Vitro, In Vivo, and Clinical Studies. *Antioxidants*, 11(5):1-23.
- Kwon, T., Lamster, I.B. dan Levin, L., (2021) Current concepts in the management of periodontitis. *International Dental Journal*, 71(6): 462-476.
- Listari, K. M., Ruhadi, I., dan Ulfa, N., (2019). Ekspresi RANKL pada defek tulang dengan pemberian xenograft dibandingkan dengan xenograft dan PRF. *E-Prodenta Journal of Dentistry*. 3(1): 216-224.
- Lee, D. E., Kim, J. H., Choi, S. H., Cha, J. H., Bak, E. J., dan Yoo, Y. J., (2014) Periodontitis mainly increases osteoclast formation via enhancing the differentiation of quiescent osteoclast precursors into osteoclasts. *J.Periodont.Res.*, 20(1): 1-3.
- López-Valverde, N., Pardal-Peláez, B., López-Valverde, A., Flores-Fraile, J., Herrero-Hernández, S., Macedo-de-Sousa, B., Herrero-Payo, J. dan Ramírez, J.M., (2021) Effectiveness of propolis in the treatment of periodontal disease: Updated systematic review with meta-analysis. *Antioxidants*, 10(2): 269.
- Lunardhi, L.C., Kresnoadi, U. dan Agustono, B., (2019) The effect of a combination of propolis extract and bovine bone graft on the quantity of fibroblasts, osteoblasts and osteoclasts in tooth extraction sockets. *Dental Journal (Majalah Kedokteran Gigi)*, 52(3): 126-132.
- Muñoz-Carrillo, J.L., Hernández-Reyes, V.E., García-Huerta, O.E., Chávez-Ruvalcaba, F., Chávez-Ruvalcaba, M.I., Chávez-Ruvalcaba, K.M. dan Díaz-Alfaro, L., (2019) Pathogenesis of periodontal disease. In *Periodontal Disease-Diagnostic and Adjunctive Non-surgical Considerations*. London: IntechOpen. pp. 4-6.
- Mustafa, H.H., Ali, A.K., Cheng, C., Radzi, R., Fong, L., Mustapha, N. dan Dyary, H.O., (2021) Development of experimentally-induced periodontitis in a Sprague Dawley rat model. *Iraqi Journal of Veterinary Sciences*, 35(4): 765-769.
- Newman, M.G., Takei, H.H., Klokkevold, P.R., dan Carranza, F.A., (2019) *Newman and Carranza's Clinical Periodontology*. 13th ed. Philadelphia : Elsevier. pp. 96,97,102, 390.
- Patil, K.S., Mahajani, M., Choudhary, S.H., Aldhuwayhi, S.D., Thakare, A. and Mustafa, M.Z., 2022. Efficacy of 1.5% metformin gel as an adjuvant to scaling, root planing, and curettage for the treatment of infrabony defects in chronic periodontitis patients. *Contemporary Clinical Dentistry*, 13(1):18-23.
- Pereira, Y.C.L., Issa, J.P.M., Watanabe, E., Nascimento, G.C., Iyomasa, M.M., Del Ciampo, J.O. dan Ervolino, E., (2018) The therapeutic use of propolis extract in alveolar bone contaminated with bacterial endotoxin. *Dentistry*, 8(473): 2161-1122.



- Prasetyaningrum, N., Soemardini, S. dan Fadil, M., (2018) Efek Ekstrak Daun Teh Hijau (*Camellia Sinensis*) Terhadap Sel Osteoklas Tulang Alveolar Tikus Putih (*Rattus Norvegicus*). *E-Prodenta Journal of Dentistry*, 2(1): 130-139.
- Pusporini, R., Listari, K.M., Nugraeni, Y., Hidayat, L.H. dan Ito, M.E.I.T., (2021) The effect of papaya seeds extracts nanoliposomes administration on osteoclasts number of diabetic periodontitis animal model. *Journal of International Dental and Medical Research*, 14(2):563-568.
- Righi, A.A., Negri, G. dan Salatino, A., (2013) Comparative chemistry of propolis from eight Brazilian localities. *Evidence-Based Complementary and Alternative Medicine*, 2013: 1-14.
- Rimbach, G., Fischer, A., Schloesser, A., Jerz, G., Ikuta, N., Ishida, Y., Matsuzawa, R., Matsugo, S., Huebbe, P. dan Terao, K., (2017) Anti-inflammatory properties of Brazilian green propolis encapsulated in a γ -cyclodextrin complex in mice fed a western-type diet. *International journal of molecular sciences*, 18(6): 1-14.
- Quamilla, N., (2016) Stres dan kejadian periodontitis (kajian literatur). *Journal of Syiah Kuala Dentistry Society*, 1(2): 161-168.
- Sanz, I., Alonso, B., Carasol, M., Herrera, D. dan Sanz, M., (2012) Nonsurgical treatment of periodontitis. *Journal of Evidence Based Dental Practice*, 12(3): 76-86.
- Sayuti, N.A., (2015) Formulasi dan uji stabilitas fisik sediaan gel ekstrak daun ketepeng cina (*Cassia alata* l.). *Jurnal Kefarmasian Indonesia*, 5(2): 74-82.
- Schröder, H., Moser, N. dan Huggenberger, S., (2020) *Neuroanatomy of the Mouse* Cham, Switzerland: Springer International Publishing. pp. 4,5.
- Sherif, H., El Sawa, A. dan Karam, S., (2015) Effect of Propolis on Induced Alveolar Bone Loss in Diabetic Rats. *Alexandria Dental Journal*, 40(2): 242-248.
- Sidiq, H.B.H.F. dan Apriliyanti, I.P., (2018) Evaluasi Sifat Fisik dan Uji Iritasi Gel Ekstrak Kulit Buah Pisang (*Musa acuminata Colla*). *JCPS (Journal of Current Pharmaceutical Sciences)*, 2(1): 131-135.
- Soekanto, S.A., Safitri, Y.N., Zeid, H., Gultom, F.P., Djais, A.A., Darwita, R.R. dan Sahlan, M., (2021) March. Effectiveness of propolis gel on Mus musculus (Swiss Webster) periodontitis model with ligature silk thread application. In *AIP Conference Proceedings*. 2344(1): 040008
- Suryono. Hasmy, N.S., Pertiwi, T.L., Benyamin, B., dan AK, A.I., (2017) Propolis 10%- gel as a topical drug candidate on gingivitis. *International Journal*, 5(1): 12- 17.
- Suputri, N.K.A.W., Azmijah, A., Bijanti, R. and Putra, M.M., 2020. Effects of Onion Extract on Hepar Histopathology in Alloxan-Induced Diabetic *Rattus Novergicus*. *Medico-Legal Update An International Journal*, 20(3):383-390.



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Pengaruh Aplikasi Gel Propolis 10% Pasca Kuretase terhadap Jumlah Osteoklas Tulang Alveolar pada Proses Penyembuhan Periodontitis (Kajian in vivo pada Tikus Sprague dawley)
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Universitas Gadjah Mada, 2022 | Diunduh dari <http://etd.repository.ugm.ac.id/>

Tamplen, M., Trapp, K., Nishimura, I., Armin, B., Steinberg, M., Beumer, J., Abemayor, E. and Nabili, V., (2011) Standardized analysis of mandibular osteoradionecrosis in a rat model. *Otolaryngology–Head and Neck Surgery*, 145(3):404-410.

Usui, M., Onizuka, S., Sato, T., Kokabu, S., Ariyoshi, W. and Nakashima, K., 2021. Mechanism of alveolar bone destruction in periodontitis—Periodontal bacteria and inflammation. *Japanese Dental Science Review*, 57, pp.201-208.

Wati, N.K.M.S., Trisnawati, N.L.P. dan Artawan, I.N., (2014) Studi Pengaruh Lamanya Pemaparan Medan Magnet Terhadap Jumlah Sel Darah Putih (Leukosit) pada Tikus Putih (*Rattus norvegicus*). *BULETIN FISIKA*, 15(1): 31-38.

Wijayanto, R., Herawati, D., dan Sudibyo., (2014) Perbedaan Efektivitas Topikal Gel Asam Hialuronat dan Gel Metronidazol terhadap Penyembuhan Jaringan Periodontal Setelah Kuretase pada Periodontitis Kronis. *Jurnal kedokteran gigi*, 5(3): 307-325.

Yanhendri, S.W.Y., 2012. Berbagai bentuk sediaan topikal dalam dermatologi. *Cermin Dunia Kedokteran*, 194(39): 423-430.

Yuanita, T., Zubaidah, N. dan Kunarti, S., (2018) Expression of osteoprotegrin and osteoclast level in chronic apical periodontitis induced with east java propolis extract. *Iranian endodontic journal*, 13(1): 42-46.

Zulhendri, F., Felitti, R., Fearnley, J. and Ravalia, M., 2021. The use of propolis in dentistry, oral health, and medicine: A review. *Journal of oral biosciences*, 63(1):23-34.