

## DAFTAR PUSTAKA

- Ahn JJ, S.H., 2008. Bone tissue formation in extraction sockets from sites with advanced periodontal disease: a histomorphometric study in humans., *Int J Oral Maxillofac Implants.*, 23(6), pp. 1133-1138.
- Aimetti M, Romano F, Griga FB, G.L., 2009. Clinical and histologic healing of human extraction sockets filled with calcium sulfate., *Int J Oral Maxillofac Implants.*, 24(5), pp. 902–909.
- Alakpa, E. V. *et al.*, 2017. Nacre Topography Produces Higher Crystallinity in Bone than Chemically Induced Osteogenesis', *ACS Nano*, 11(7), pp. 6717–6727. Available at: <https://doi.org/10.1021/acsnano.7b01044>.
- Anggraini, R. *et al.*, 2021. Nanostructure of carbonated hydroxyapatite precipitation extracted from pearl shells (*Pinctada maxima*) by pH treatment, *Digest Journal of Nanomaterials and Biostructures*, 16(4), pp. 1619–1625.
- Antonio Barone, U.N., 2014. *Bone, Biomaterials, and Beyond*. Milano: Edra LSWR.
- Araújo, M.G. and Lindhe, J., 2005. Dimensional ridge alterations following tooth extraction. An experimental study in the dog, *Journal of Clinical Periodontology*, 32(2), pp. 212–218. Available at: <https://doi.org/10.1111/j.1600-051X.2005.00642.x>.
- Araujo M.G., Silva C.O, Misawa M. 2015. Alveolar socket healing: What can we learn? *Periodontal 2000* 68, 122-134
- Arnawati, I.A. and Sudiana, I.K., 2022. Formation of woven bone in orthodontic tooth movement tension areas after giving Mangostin by expression of Runx-2 and IL-10, *Bali Medical Journal*, 11(3), pp. 1956–1962. Available at: <https://doi.org/10.15562/bmj.v11i3.3971>.
- Baron, R., 2000. Anatomy and Ultrastructure of Bone – Histogenesis, Growth and Remodeling, *Endotext*[Preprint]. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/25905372>.
- Barrientos, S. *et al.*, 2008. Growth factors and cytokines in wound healing, *Wound Repair andRegeneration*, 16(5), pp. 585–601. Available at: <https://doi.org/10.1111/j.1524-475X.2008.00410.x>.
- Beck-Broichsitter, B.E. *et al.*, 2015. Targeting gene expression during the early bone healing period in the mandible: A base for bone tissue engineering, *Journal of Cranio-Maxillofacial Surgery*, 43(8), pp. 1452 1460. Available at: <https://doi.org/10.1016/j.jcms.2015.06.015>.
- Brundavanam, R.K., Fawcett, D. and Poinern, G.E.J., 2017. Synthesis of a bone like composite material derived from waste pearl oyster shells for potential bone tissue bioengineering applications, *International Journal of Research in Medical Sciences*, 5(6), p. 2454. Available at: <https://doi.org/10.18203/2320 6012.ijrms20172428>.



ti, P. and Imanina, Z., 2017. Gambaran histopatologi penyembuhan luka pencabutan ikrofag dan neovaskular dengan pemberian getah batang pisang ambon, *Majalah Gigi Indonesia*, 3(3), p. 3. Available at: <https://doi.org/10.22146/majkedgiind.17454>.

2015. Socket Preservation', *Padjajaran Journal of Dentistry*, 27(3), pp. 133–138.

Alveolar Socket Healing : What Can We Learn ?, *Journal of Periodontology 2000*, 16(3

4), pp. 1660–1666.

Cardaropoli, G., Araújo, M. and Lindhe, J., 2003. Dynamics of bone tissue formation in tooth extraction sites: An experimental study in dogs, *Journal of Clinical Periodontology*, 30(9), pp. 809–818. Available at: <https://doi.org/10.1034/j.1600-051X.2003.00366.x>.

Chandha, M.H. *et al.*, 2022. Pinctada Maxima Pearl Shells as a Promising Bone Graft Material in the World of Dentistry, *Open Access Macedonian Journal of Medical Sciences*, 10(D), pp. 109–115. Available at: <https://doi.org/10.3889/oamjms.2022.8529>.

Chandha, M.H. *et al.*, 2023. Utilization Effectivity Of Pearl Oyster Shell (Pinctada Maxima) As Industrial Waste In Pangkep To Osteogenesis Bone Graft To Cavia Porcellus Femur, *Journal of*, 14(2), pp. 218–225. Available at: <https://doi.org/10.47750/pnr.2023.14.S02.29>.

Chappuis, V., Araújo, M.G. and Buser, D., 2017. Clinical relevance of dimensional bone and soft tissue alterations post-extraction in esthetic sites, *Periodontology 2000*, 73(1), pp. 73–83. Available at: <https://doi.org/10.1111/prd.12167>.

Di Conza, G. *et al.*, 2023. Woven bone formation and mineralization by rat mesenchymal stromal cells imply increased expression of the intermediate filament desmin, *Frontiers in Endocrinology*, 14(September), pp. 1–19. Available at: <https://doi.org/10.3389/fendo.2023.1234569>.

Coringa, R. *et al.*, 2018. Bone substitute made from a Brazilian oyster shell functions as a fast stimulator for bone-forming cells in an animal model, *PLoS ONE*, 13(6), pp. 1–13. Available at: <https://doi.org/10.1371/journal.pone.0198697>.

Davies, J.E. and Hosseini, M.H., 2000. 'Histodynamics of Endosseous Wound Healing, *Bone Engineering*, (January), pp. 1–14.

Devlin, H. and Sloan, P., 2002. Early bone healing events in the human extraction socket, *International Journal of Oral and Maxillofacial Surgery*, 31(6), pp. 641–645. Available at: <https://doi.org/10.1054/ijom.2002.0292>.

Disodonta, O., Pteridae, F. and Pinctada, G., (no date). SEJARAH USAHA BUDIDAYA MUTIARA Di PROVINSI NUSA TENGGARA BARAT.

Dr. Aminatun, Ir., M.S. (no date) 'Cangkang Kerang Mutiara sebagai Pembentuk Nanokarbonat Hidroksiapatit', *Beranda UNAIR*. Available at: <https://unair.ac.id/cangkang-kerang-mutiara-sebagai-pembentuk-nanokarbonat-hidroksiapatit/>.

Evian, C.I. *et al.*, 1982. The Osteogenic Activity of Bone Removed From Healing Extraction Sockets in Humans, *Journal of Periodontology*, 53(2), pp. 81–85. Available at: <https://doi.org/10.1902/jop.1982.53.2.81>.

Farina R, Trombelli L, 2011. Wound healing of extraction sockets. *Endod Top* 1618.

Fauzia, M., Agoes Wibisono, P. and Maduratna, E., 2019. Ekspresi BMP-2 Pada Pemberian Hydroksiapatite d Bone Graft Material Pada Soket Marmut, *Journal of Dentistry*. 2019, 3(2), pp. Available at: <http://dx.doi.org/10.21776/ub.eprodenta.2019.003.02.1>.



14. Effect of biomaterial properties on bone healing in a rabbit tooth extraction socket *Journal of Biomedical Materials Research - Part A*, 68(3), pp. 428–438. Available at: [/10.1002/jbm.a.20073](https://doi.org/10.1002/jbm.a.20073).

- Garlet, G.P. *et al.*, 2012. Expression analysis of wound healing genes in human periapical granulomas of progressive and stable nature, *Journal of Endodontics*, 38(2), pp. 185–190. Available at: <https://doi.org/10.1016/j.joen.2011.09.011>.
- Gerhard, E.M. *et al.*, 2017. Design strategies and applications of nacre-based biomaterials, *Acta Biomaterialia*, 54, pp. 21–34. Available at: <https://doi.org/10.1016/j.actbio.2017.03.003>.
- Giannoudis, P. V., Dinopoulos, H. and Tsiridis, E., 2005. Bone substitutes: an update., *Injury*, 36 Suppl 3, pp. 20–27. Available at: <https://doi.org/10.1016/j.injury.2005.07.029>.
- Gomes, P. de S. *et al.*, 2019. Molecular and Cellular Aspects of Socket Healing in the Absence and Presence of Graft Materials and Autologous Platelet Concentrates: a Focused Review, *Journal of Oral and Maxillofacial Research*, 10(3), pp. 1–18. Available at: <https://doi.org/10.5037/jomr.2019.10302>.
- Green, D.W., Kwon, H.J. and Jung, H.S., 2015. Osteogenic potency of nacre on human mesenchymal stem cells, *Molecules and Cells*, 38(3), pp. 267–272. Available at: <https://doi.org/10.14348/molcells.2015.2315>.
- Hassumi, J.S. *et al.*, 2018. Alveolar bone healing in rats: micro-CT, immunohistochemical and molecular analysis, *Journal of Applied Oral Science*, 26, pp. 1–12. Available at: <https://doi.org/10.1590/1678-7757-2017-0326>.
- Heberer, S. *et al.*, 2011. Healing of ungrafted and grafted extraction sockets after 12 weeks: a prospective clinical study., *The International journal of oral & maxillofacial implants*, 26(2), pp. 385–92. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/21483892>.
- Huynh-Ba, G. *et al.*, 2010. Analysis of the socket bone wall dimensions in the upper maxilla in relation to immediate implant placement, *Clinical Oral Implants Research*, 21(1), pp. 37–42. Available at: <https://doi.org/10.1111/j.1600-0501.2009.01870.x>.
- Irinakis, T., 2006 Rationale for socket preservation after extraction of a single-rooted tooth when planning for future implant placement, *Journal of the Canadian Dental Association*, 72(10), pp. 917–922.
- Sa'diyah, *et al.*, 2020. Pengaruh gel ekstrak daun binahong (*Anredera cordifolia*) 5% terhadap peningkatan osteoblas pada proses penyembuhan luka pasca pencabutan gigi tikus *strain wistar*, *Departemen Biomedis dan Biologi Mulut, Fakultas Kedokteran Gigi Universitas Muhammadiyah Surakarta, Indonesia*, korespondensi: [jannatussalissadiyah@gmail.com](mailto:jannatussalissadiyah@gmail.com) DOI: [10.24198/jkg.v32i1.26885](https://doi.org/10.24198/jkg.v32i1.26885)
- Kalesaran, O.J. *et al.*, 2018. Komposisi mineral cangkang kerang mutiara *Pinctada margaritifera* di Sulawesi Utara, *e-Journal BUDIDAYA PERAIRAN*, 6(1), pp. 25–30. Available at: <https://doi.org/10.35800/bdp.6.1.2018.24126>.
- Kassim, B., Ivanovski, S. and Mattheos, N., 2014. Current perspectives on the role of ridge (socket) preservation procedures in dental implant treatment in the aesthetic zone, *Australian Dental Journal*, pp. 48–56. Available at: <https://doi.org/10.1111/adj.12098>.
- laka, S. and Lingamaneni, K.P., 2016. Hydroxyapatite—Past, Present, and Future in 'Regeneration', *Bone and Tissue Regeneration Insights*, 7, p. BTRI.S36138. Available at: [/10.4137/btri.s36138](https://doi.org/10.4137/btri.s36138).



at Various Temperatures, *Procedia Manufacturing*, 2(February), pp. 196–201. Available at: <https://doi.org/10.1016/j.promfg.2015.07.034>.

- Koković, V. and Todorović, L., 2011. Preimplantation filling of tooth socket with  $\beta$ -tricalcium phosphate/poly(lactic-polyglycolic acid) ( $\beta$ -TCP/PLGA) root analogue: clinical and histological analysis in a patient, *Vojnosanitetski Pregled*, 68(4), pp. 366–371. Available at: <https://doi.org/10.2298/VSP1104366K>.
- Kotta, R., 2018. Teknik Pembenuhan Tiram Mutiara ( *Pinctada maxima* )', *Seminar Nasional Penelitian, Pusat Lipi Oseanografi Ternate*, 1(2), pp. 228–244.
- Kumar, P., Vinitha, B. and Fathima, G., 2013. Bone grafts in dentistry, *Journal of Pharmacy and Bioallied Sciences*, 5(SUPPL.1), pp. 125–128. Available at: <https://doi.org/10.4103/0975-7406.113312>.
- Ladd, A.L. and Wirsing K., 2009. Bone graft substitutes, *Principles and Practice of Wrist Surgery*, pp. 277–287.
- Lamusul Afiyah, L. and Medawati, A., 2017. Efektifitas Gel Ekstrak *Pithecellobium lobatum* Benth. pada Proses Kesembuhan Luka Pascapencabutan Gigi: Studi pada *Cavia* cobaya dengan Pengamatan Histologis, *Mutiara Medika: Jurnal Kedokteran dan Kesehatan*, 17(2), pp. 86–91. Available at: <https://doi.org/10.18196/mm.170205>.
- Landsberg, C. *et al.*, 2021. Postextraction ridge width alterations following socket seal surgery—A retrospective study, *Applied Sciences (Switzerland)*, 11(1), pp. 1–9. Available at: <https://doi.org/10.3390/app11010324>.
- Lindhe, J. *et al.*, 2012. The alveolar process of the edentulous maxilla in periodontitis and non-periodontitis subjects, *Clinical Oral Implants Research*, 23(1), pp. 5–11. Available at: <https://doi.org/10.1111/j.1600-0501.2011.02205.x>.
- Markel, M.D., 2019. Bone grafts and bone substitutes, *Equine Fracture Repair*, pp. 163–172. Available at: <https://doi.org/10.1002/9781119108757.ch11>.
- Nahles, S. *et al.*, 2013. Bone physiology in human grafted and non-grafted extraction sockets - an immunohistochemical study, *Clinical Oral Implants Research*, 24(7), pp. 812–819. Available at: <https://doi.org/10.1111/j.1600-0501.2012.02462.x>.
- Nardiatmo, S.P.S., Mapangara, S. and Jais, A.I., 2019. Socket preservation after tooth extraction : a systematic review, *Makassar Dent J*, 8(2), pp. 91–96.
- Next-Generation Biomaterials for Bone & periodontal Regeneration*. 1st edn., 2011. Illinois: Quintessence Publishing Co. Ltd.
- Pagni, G. *et al.*, 2012. Postextraction alveolar ridge preservation: Biological basis and treatments, *International Journal of Dentistry*, 2012. Available at: <https://doi.org/10.1155/2012/151030>.



7. Autogenous demineralized dentin matrix from extracted tooth for the augmentation of the alveolar bone defect: a prospective randomized clinical trial in comparison with anorganic bovine dentin matrix, *Clinical Oral Implants Research*, 28(7), pp. 809–815. Available at: <https://doi.org/10.1111/clr.12885>.

Bone Grafts in Periodontics-A Review, *CODS Journal of Dentistry*, 7(2), pp. 64–70. Available at: <https://doi.org/10.5005/cods-7-2-64>.

- Pranskunas, M., Galindo-Moreno, P. and Padiál-Molina, M., 2019. Extraction Socket Preservation Using Growth Factors and Stem Cells: a Systematic Review, *Journal of Oral and Maxillofacial Research*, 10(3), pp. 3–7. Available at: <https://doi.org/10.5037/jomr.2019.10307>.
- Roberta Farina, L.T., 2012. Wound Healing of Extraction Sockets, *Endodontic Topics*, 25, pp. 16–43. Available at: <https://doi.org/10.1002/9781118704509.ch8>.
- Roberts, T.T. and Rosenbaum, A.J., 2012. Bone grafts, bone substitutes and orthobiologics, *Organogenesis*, 8(4), pp. 114–124. Available at: <https://doi.org/10.4161/org.23306>.
- Rostiny, R. *et al.*, 2014. Spirulina chitosan gel induction on healing process of Cavia cobaya post extraction socket, *Dental Journal (Majalah Kedokteran Gigi)*, 47(1), p. 19. Available at: <https://doi.org/10.20473/j.djmk.v47.i1.p19-24>.
- Scala, A. *et al.*, 2014. Sequential healing of open extraction sockets. An experimental study in monkeys', *Clinical Oral Implants Research*, 25(3), pp. 288–295. Available at: <https://doi.org/10.1111/clr.12148>.
- Shah, F.A. *et al.*, 2019. Extracellular matrix composition during bone regeneration in the human dental alveolar socket, *Bone*, 127, pp. 244–249. Available at: <https://doi.org/10.1016/j.bone.2019.06.003>.
- Shapiro, F. and Wu, J.Y., 2019. Woven bone overview: Structural classification based on its integral role in developmental, repair and pathological bone formation throughout vertebrate groups, *European Cells and Materials*, 38, pp. 137–167. Available at: <https://doi.org/10.22203/eCM.v038a11>.
- Sheng Z, Zheng F, Li J, Wang Y, Du Y, Liu X, Y.X., 2023. Denervation delays initial bone healing of rat tooth extraction socket. *Odontology, Journal of Odontology*, 111(3), pp. 640–648. Available at: <https://doi.org/10.1007/s10266-022-00773-x>.
- Shruthi Eshwar, K. Kranthi, Supriya Manvi, Purnima Ashok, Y., S. Surana, 2021. Histological Assesment of Fucoidan Gelatine Chitosan Compound Injectable Hydrogel for Bone Regeneratin in Wistar Rats. *Indian J Pharm Sci* 83, 1254-1260.
- Sri Hastuti, Subandiyono, Seto Windarto, dan R.A.N., 2019. PERFORMA BIOLOGIS TIRAM MUTIARA (*Pinctada maxima*) The biological performance of pearl oysters (*Pinctada maxima*) which are cultured in different densities uses a longline system', *Jurnal Saintek Perikanan*, 15(1).
- Srinivas, B. *et al.*, 2018. Wound healing and bone regeneration in postextraction sockets with and without platelet-rich fibrin, *Annals of Maxillofacial Surgery*, 8(1), pp. 28–34. Available at: [https://doi.org/10.4103/ams.ams\\_153\\_17](https://doi.org/10.4103/ams.ams_153_17).
- Sularsih, Soeprijanto, 2012. The Comparison of Osteoblast Cell Number in Bone Healing Between The Use of Kitosan Gel 1% and 2%. *Jurnal Material Kedokteran Gigi* 1, 145-152.
- Susi Rahayu, Dian W. Kurniawidi, A.G., 2018. Pemanfaatan Limbah Cangkang Kerang Mutiara (*Pinctada* bagi Sumber Hidroksiapatit, *Jurnal Pendidikan Fisika dan Teknologi*, 4(2).
- Zhenzhen Wu, Yunmao Liao, 2020. The Injectable Woven Bone-Like Hydrogel to veolar Ridge Preservation With Adapted Remodeling Performace After Tooth Front Bioeng Biotechnol 8.
0. The effectiveness bone graft of snakehead fish bones (*Channa striata*) in the gelatin





form on the osteocalcin (ocn) expressions, *International Journal of Pharmaceutical Research*, 12(2), pp. 4365–4369. Available at: <https://doi.org/10.31838/ijpr/2020.SP2.547>.

Timothy J. Koh, L.A.D., 2013. Inflammation and wound healing : The role of the macrophage, *Acta Poloniae Pharmaceutica - Drug Research*, 03(13), pp. 01–14. Available at: <https://doi.org/10.1017/S1462399411001943>.Inflammation.

Trombelli, L. *et al.*, 2008. Modeling and remodeling of human extraction sockets, *Journal of Clinical Periodontology*, 35(7), pp. 630–639. Available at: <https://doi.org/10.1111/j.1600051X.2008.01246.x>.

Udeabor, S.E. *et al.*, 2023. Current Knowledge on the Healing of the Extraction Socket: A Narrative Review, *Bioengineering*, 10(10), pp. 1–11. Available at: <https://doi.org/10.3390/bioengineering10101145>.

Venkatesan, J., Bhatnagar, I., Kim, S.K., 2014d. Chitosan-alginate biocomposite containing fucoidan for bone tissue engineering. *Mar Drugs* 12, 300-316. <https://doi.org/10.3390/md12010300>.

Vieira, A.E. *et al.*, 2015. Intramembranous bone healing process subsequent to tooth extraction in mice: Micro-computed tomography, histomorphometric and molecular characterization, *PLoS ONE*, 10(5), pp. 1–22. Available at: <https://doi.org/10.1371/journal.pone.0128021>.

Vignoletti, F. *et al.*, 2012. Bone modelling at fresh extraction sockets: Immediate implant placement versus spontaneous healing. An experimental study in the beagle dog, *Journal of Clinical Periodontology*, 39(1), pp. 91–97. Available at: <https://doi.org/10.1111/j.1600-051X.2011.01803.x>.

Wang, W. and Yeung, K.W.K., 2017. Bone grafts and biomaterials substitutes for bone defect repair: A review, *Bioactive Materials*, 2(4), pp. 224–247. Available at: <https://doi.org/10.1016/j.bioactmat.2017.05.007>.

Wardana, I.K. *et al.*, 20AD. Profil Benih Tiram Mutiara ( *Pinctada maxima* ) Dari Hasil Pemijahan yang Terkontrol Spawning, *Jurnal Oseanologi Indonesia*, 1(1), pp. 6–11.

Van Der Weijden, F., Dell'Acqua, F. and Slot, D.E., 2009. Alveolar bone dimensional changes of post extraction sockets in humans: A systematic review, *Journal of Clinical Periodontology*, 36(12), pp. 1048–1058. Available at: <https://doi.org/10.1111/j.1600-051X.2009.01482.x>.

Yang, T. *et al.*, 2020. The Injectable Woven Bone-Like Hydrogel to Perform Alveolar Ridge Preservation With Adapted Remodeling Performance After Tooth Extraction, *Frontiers in Bioengineering and Biotechnology*, 8(February), pp. 1–15. Available at: <https://doi.org/10.3389/fbioe.2020.00119>.

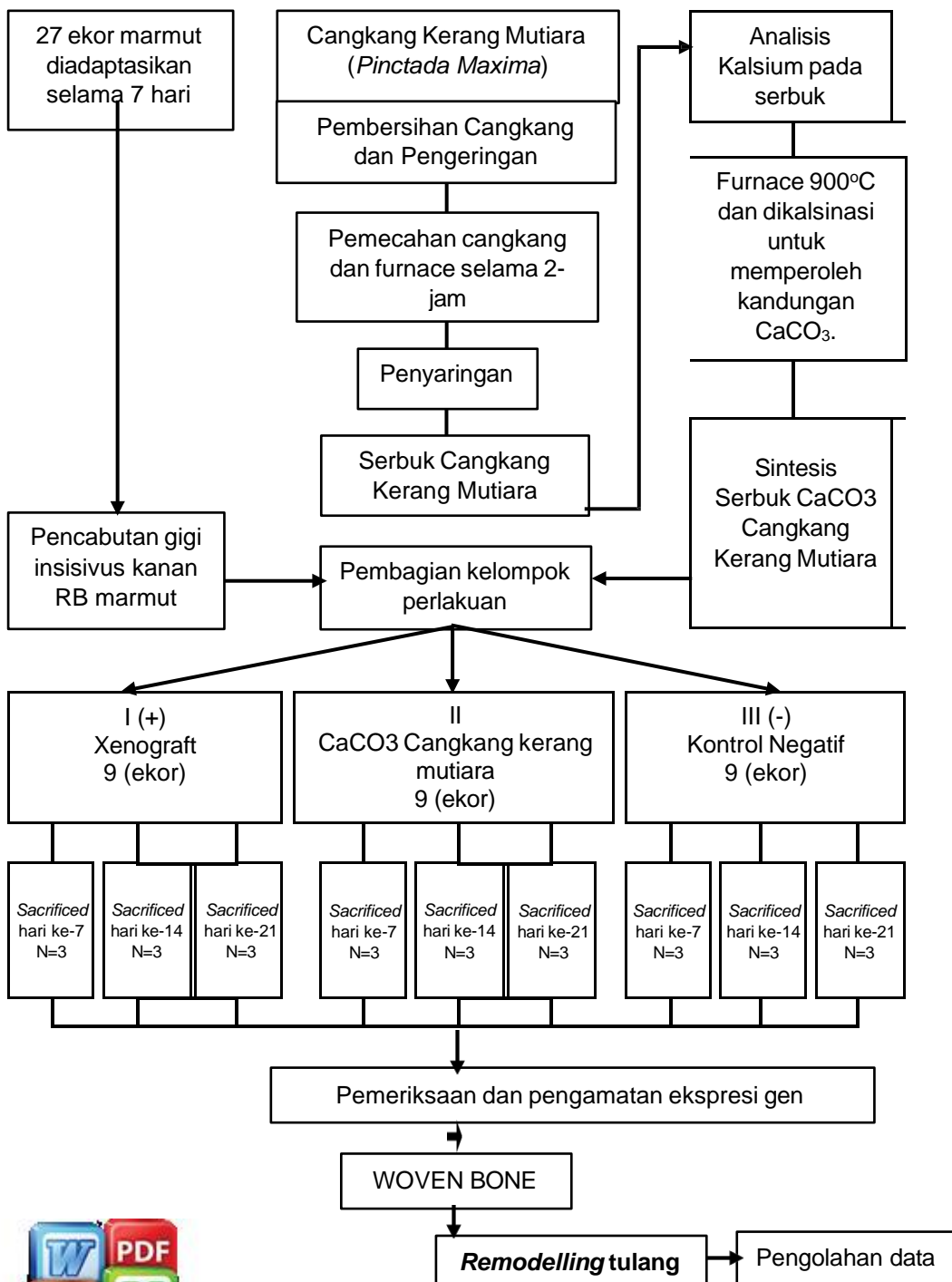
Younis, W.H. *et al.*, 2013. Molecular events on tooth socket healing in diabetic rabbits', *British Journal of Oral and Maxillofacial Surgery*, 51(8), pp. 932–936. Available at: <https://doi.org/10.1016/j.bjoms.2013.08.014>.

Zhao, R. *et al.*, 2021. Bone grafts and substitutes in dentistry: A review of current trends and s, *Molecules*, 26 (10), pp. 1–27. Available at: [/10.3390/molecules26103007](https://doi.org/10.3390/molecules26103007). (No date) 'Kerang Mutiara'. Available at: [kom.ac.id/ensiklopedia/Kerang\\_mutiara](http://kom.ac.id/ensiklopedia/Kerang_mutiara).

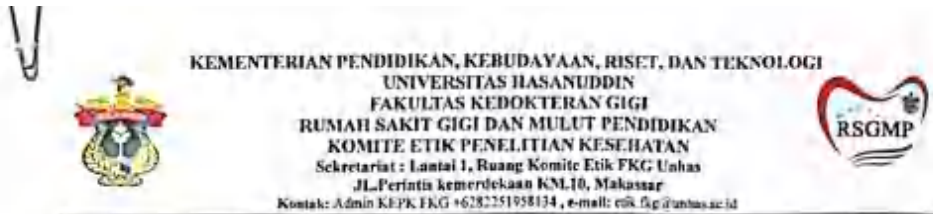


# Lampiran

## Lampiran 1. Alur Penelitian



## Lampran 2 : Rekomendasi persetujuan etik



No. Reg. Protokol : 206/FGUI/PPDGS\_Perio-009/VIII/2024

**PERSETUJUAN ETIK**  
**ETHICAL APPROVAL**

No: 005/KEPK FKG-RSGMP UH/EA/X/2024

Komite Etik Penelitian Kesehatan Fakultas Kedokteran Gigi Universitas Hasanuddin Makassar, dalam upaya melindungi hak asasi dan kesejahteraan subjek penelitian serta menjamin bahwa penelitian berjalan sesuai dengan pedoman *International Conference on Harmonization – Good Clinical Practice (ICH-GCP)* dan aturan lainnya yang berlaku, telah mengkaji dengan teliti dan menyetujui proposal penelitian berjudul:

*The Health Research Ethics Committee Faculty of Dentistry Hasanuddin University Makassar, in an effort to protect the basic rights and welfare of the subject of the research and to assure that the research operates in accordance with International Conference on Harmonization – Good Clinical Practice (ICH-GCP) guidelines and other applicable laws and regulations, has thoroughly reviewed and approved a research proposal entitled:*

**“Efektivitas Kalsium Karbonat dari Cangkang Kerang Mutiara (*Pinctada Maxima*) Non Budidaya Terhadap Pembentukan *Woven Bone* pada Tindakan *Socket Preservation*”**

Versi Protokol : 0

Versi ICF : 0

Nama Peneliti Utama : drg. Yoseph Saferius Kanisius Ani  
*Principal Researcher*

Pembimbing/Peneliti Lain : 1. drg. Surijana Mappangara, M. Kes., Sp. Perio (K)  
*Supervisor/Other Researcher* 2. Dr. Arni Irawaty Djais, drg., Sp. Perio (K)

Lokasi Penelitian : 1. Pulau Bontosua, Kabupaten Pangkajene dan Kepulauan,  
*Research Site* Sulawesi Selatan, Indonesia  
2. Laboratorium Politeknik Kimia UNHAS  
3. Klinik Hewan Docpet Makassar  
4. Laboratorium Patologi Anatomi RSP UNHAS  
5. Laboratorium Biokimia Biomol Gedung bersama Pendidikan Fakultas Kedokteran Universitas Brawijaya

Nama Institusi : Fakultas Kedokteran Gigi Universitas Hasanuddin  
*Institution*

Proposal tersebut dapat disetujui pelaksanaannya.  
*Hereby declare that the proposal is approved.*

Ditetapkan di : Makassar  
*Issued in*

Tanggal : 3 Oktober 2024  
*Date*

Ketua,  
*Chairman*

Emini Madina, drg., Ph.D., Sp.PM., Subsp.Inf(K)  
NIP.197506012009122001







## Lampiran 3. Lembar Perbaikan Ujian Seminar Hasil PPDGS Periodonsia

Nama : Yoseph Saferius Kanisius Ani  
 Nim : J035212006

Tanggal Seminar : 4 Oktober 2024  
 Judul : Efektivitas Kalsium Karbonat Dari Cangkang Kerang Mutiara (Pinctada Maxima) Non-Budidaya Terhadap Pembentukan Woven Bone Pada Tindakan Socket Preservation

No	Nama Penguji/ Pembimbing	Koreksi Tesis	Paraf
1.	Dr. Arni Irawaty Djais, drg., Sp. Perio., Subsp. R.P.I.D (K)	<p>1. Melakukan perbaikan Berdasarkan masukan dari para penguji.</p> <p>2. Perbaiki kalimat rumusan masalah dan hipotesa serta kesimpulan harus menjawab hipotesa.</p> <p><b>Jawaban:</b></p> <p>1. Penulisan dan penyusunan tesis telah diperbaiki berdasarkan masukan dari tim penguji dan dapat dilihat pada naskah.</p> <p>2. Kalimat rumusan masalah dan hipotesa telah diperbaiki serta kesimpulan telah Menjawab hipotesa</p>	
2.	drg. Dian Setiawati, Sp.Perio., Subsp.M.P.(K)	<p>1. Perbaiki tulisan judul didahului nama Kimia dan di ikuti lambang atau unsur kimia</p> <p><b>Jawaban:</b></p> <p>1. telah diperbaiki penulisan judul didahului nama kimia baru dan di ikuti lambing atau unsur kimia</p>	



#### Lampran 4 : Proses ekstraksi cangkang kerang mutiara



a



b



c



c



d



f

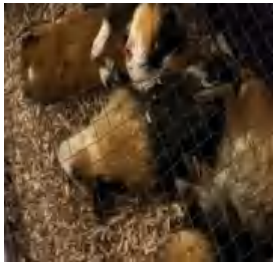


g

**Keterangan gambar:** (a)Cangkang kerang Mutiara di bersihkan dengan cara disikat; (b)Cangkang kerang Mutiara di keringkan dan di jemur di bawah sinar matahari; (c)Proses penepungan Cangkang kerang Mutiara; (d)Proses kalnasi; (e)sampel setelah di kalnasi; (f)Penambahan akuades hingga menjadi suspensi; (g) Penyaringan suspensi



### Lampiran 5 : Perlakuan hewan coba dan pengambilan jaringan



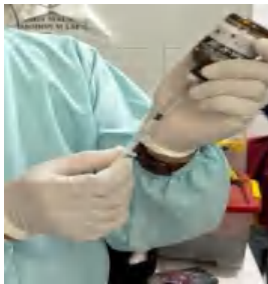
a



b



c



d



e



f



g



h



i

**Keterangan gambar:** (a) Adaptasi hewan; (b) Penimbangan hewan; (c) Desinfeksi ekstra oral dan intra oral (d) Pemberian anestesi; (e) Persiapan pencabutan gigi pada hewan; (f) Insisi; (g) Pecabutan gigi hewan coba (h) Pemberian perlakuan hewan ciba dengan Bubuk HA, Kalsium karbonat (i) Pemberian bubuk HA cangkang kerang mutiara; (j) Penjahitan.



## Lampiran 6 : Output Uji Statistik Woven Bone

## Tests of Normality

Kelompok Perlakuan	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
WB Xenograft	.238	3	.	.976	3	.702
Bonegraft cangkang	.236	3	.	.977	3	.710
Placebo	.319	3	.	.884	3	.338

a. Lilliefors Significance Correction

## Oneway (hari ke-7)

## Descriptives

WB

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Xenograft	3	6.6067	.64392	.37177	5.0071	8.2063	6.22	7.35
Bonegraft cangkang	3	7.7067	1.62679	.93923	3.6655	11.7478	6.65	9.58
Placebo	3	4.2033	.82403	.47576	2.1563	6.2503	3.59	5.14
Total	9	6.1722	1.82824	.60941	4.7669	7.5775	3.59	9.58

## ANOVA

WB

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	19.259	2	9.630	7.724	.022
Within Groups	7.480	6	1.247		
Total	26.740	8			



### Multiple Comparisons

Dependent Variable: WB

LSD

(I) Kelompok Perlakuan	(J) Kelompok Perlakuan	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Xenograft	Bonegraft cangkang	-1.10000	.91167	.273	-3.3308	1.1308
	Placebo	2.40333*	.91167	.039	.1726	4.6341
Bonegraft cangkang	Xenograft	1.10000	.91167	.273	-1.1308	3.3308
	Placebo	3.50333*	.91167	.009	1.2726	5.7341
Placebo	Xenograft	-2.40333*	.91167	.039	-4.6341	-.1726
	Bonegraft cangkang	-3.50333*	.91167	.009	-5.7341	-1.2726

\*. The mean difference is significant at the 0.05 level.

### Oneway (hari ke-14)

#### Descriptives

WB

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Xenograft	3	9.9400	1.50270	.86758	6.2071	13.6729	8.65	11.59
Bonegraft cangkang	3	12.6433	1.48541	.85760	8.9534	16.3333	11.32	14.25
Placebo	3	4.8600	1.37884	.79607	1.4348	8.2852	3.58	6.32
Total	9	9.1478	3.64736	1.21579	6.3442	11.9514	3.58	14.25

### ANOVA

WB

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	93.695	2	46.847	22.078	.002
Within Groups	12.731	6	2.122		
Total	106.426	8			





### Multiple Comparisons

Dependent Variable: WB

LSD

(I) Kelompok Perlakuan	(J) Kelompok Perlakuan	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Xenograft	Bonegraft cangkang	-2.70333	1.18937	.063	-5.6136	.2070
	Placebo	5.08000*	1.18937	.005	2.1697	7.9903
Bonegraft cangkang	Xenograft	2.70333	1.18937	.063	-.2070	5.6136
	Placebo	7.78333*	1.18937	.001	4.8730	10.6936
Placebo	Xenograft	-5.08000*	1.18937	.005	-7.9903	-2.1697
	Bonegraft cangkang	-7.78333*	1.18937	.001	-10.6936	-4.8730

\*. The mean difference is significant at the 0.05 level.

### Oneway (hari ke-21)

#### Descriptives

WB

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Xenograft	3	15.1633	2.86470	1.65394	8.0470	22.2797	12.59	18.25
Bonegraft cangkang	3	17.0500	1.77542	1.02504	12.6396	21.4604	15.14	18.65
Placebo	3	5.9933	.65394	.37755	4.3689	7.6178	5.25	6.48
Total	9	12.7356	5.40221	1.80074	8.5831	16.8881	5.25	18.65

### ANOVA

WB

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	209.898	2	104.949	26.713	.001
Within Groups	23.573	6	3.929		
Total	233.471	8			

