

## DAFTAR PUSTAKA

- Adriani, A. (2022). Penetapan Kadar Kalsium Pada Ikan Tongkol Segar Dan Asap Secara Kompleksometri. *Jurnal Sains Dan Kesehatan Darussalam*, 2(1), 35–41. <https://doi.org/10.56690/jskd.v2i1.37>
- Afriani, F., Siswoyo, Amelia, R., Hudatwi, M., Zaitun, & Tiandho, Y. (2020). Hydroxyapatite from natural sources: Methods and its characteristics. *IOP Conference Series: Earth and Environmental Science*, 599(1). <https://doi.org/10.1088/1755-1315/599/1/012055>
- Amalia Hariyanto, Y., Taufiq, A., & Sunaryono, S. (2018). Sintesis, Karakterisasi Struktur dan Sifat Optik Nanopartikel Hidroksiapatit/Magnetit. *JPSE (Journal of Physical Science and Engineering)*, 3(1), 16–24. <https://doi.org/10.17977/um024v3i12018p016>
- Amalia, V., Hadisantoso, E. P., Hidayat, D., Diba, R. F., Dermawan, M. F., & Tsaniyah, S. W. (2018). Isolasi dan Karakterisasi Hidroksiapatit dari Limbah Tulang Hewan. *Alchemy*, 5(4), 114. <https://doi.org/10.18860/al.v5i4.4705>
- Chadijah, S. (2018). ANALISIS HIDROKSIAPATIT DARI TULANG IKAN TUNA (THUNNUS ALBACORES) DENGAN XRF, FTIR, dan XRD. *Al-Kimia*, 6(2). <https://doi.org/10.24252/al-kimia.v6i2.5067>
- Christyaningsih, R. Y., & Diponegoro, U. (2020). *Aplikasi Fisika Kuantum-Hamburan Pada " X-Ray Diffraction ( XRD ) "*. June.
- Daeng, R. A. (2019). Pemanfaatan Tepung Tulang Ikan Cakalang (Katsuwonus pelamis) sebagai Sumber Kalsium dan Fosfor untuk Meningkatkan Nilai Gizi Biskuit. *Jurnal Biosainstek*, 1(01), 22–30. <https://doi.org/10.52046/biosainstek.v1i01.209>
- Fairag, R., Rosenzweig, D. H., Ramirez-Garcialuna, J. L., Weber, M. H., & Haglund, L. (2019). Three-Dimensional Printed Polylactic Acid Scaffolds Promote Bone-like Matrix Deposition in Vitro [Research-article]. *ACS Applied Materials and Interfaces*, 11(17), 15306–15315. <https://doi.org/10.1021/acsami.9b02502>
- Faqihuddin, & Ubaydillah, M. I. (2021). Seminar Nasional Hasil Riset dan

- Pengabdian Ke-III (SNHRP-III 2021) Perbandingan Metode Destruksi Kering Dan Destruksi Basah Instrumen Spektrofotometri Serapan Atom (SSA) Untuk Analisis Logam. *Seminar Nasional Hasil Riset Dan Pengabdian Ke-III*, 86, 121–127.
- Gintu, A. R., Kristiani, E. B. E., & Martono, Y. (2020). Hydroxiapatite (HAp) Bioceramics Made from The Caletaiya presclupta Snail Shells from Poso Lake. *JKPK (Jurnal Kimia Dan Pendidikan Kimia)*, 5(3), 254. <https://doi.org/10.20961/jkpk.v5i3.45983>
- Hadi, Z., Hekmat, N., & Soltanolkottabi, F. (2022). Effect of hydroxyapatite on physical, mechanical, and morphological properties of starch-based biocomposite films. *Composites and Advanced Materials*, 31, 263498332210877. <https://doi.org/10.1177/26349833221087755>
- Hastuti, resti, Endah Srie Rezeki Nur, Nofriyaldi, A. (2020). Pharmacoscript volume 3 No. 2 Agustus 2020. *Pharmacoscript*, 3(2), 1–12.
- Heat, M., Ananda, R., & Purba, P. (2023). ( HAp ) DARI TULANG IKAN TENGGIRI ( *Scomberomorus*.
- Hong, T., Yin, J. Y., Nie, S. P., & Xie, M. Y. (2021). Applications of infrared spectroscopy in polysaccharide structural analysis: Progress, challenge and perspective. *Food Chemistry: X*, 12(October), 100168. <https://doi.org/10.1016/j.fochx.2021.100168>
- Hoten, H. Van. (2020). Analisis Karakterisasi Serbuk Biokeramik Dari Cangkang Telur Ayam Broiler. *Rotor*, 13(1), 1. <https://doi.org/10.19184/rotor.v13i1.18874>
- Ielo, I., Calabrese, G., De Luca, G., & Conoci, S. (2022). Recent Advances in Hydroxyapatite-Based Biocomposites for Bone Tissue Regeneration in Orthopedics. *International Journal of Molecular Sciences*, 23(17). <https://doi.org/10.3390/ijms23179721>
- Ismawati, A. N., Iryani, A., & Kusumawadani, L. J. (2023). Effectiveness Hydroxyapatite from Chicken Eggshells for Adsorption of Chromium (VI) Metal Ion Electroplating Waste. *Helium: Journal of Science and Applied Chemistry*, 3(1), 06–12. <https://doi.org/10.33751/helium.v3i1.7929>

- Jeong, J., Kim, J. H., Shim, J. H., Hwang, N. S., & Heo, C. Y. (2019). *Whitlockite verification.pdf*. 1–11.
- Kontogianni, G., Coelho, C., Gauthier, R., Fiorilli, S., Quadros, P., Vitale-brovarone, C., & Chatzinikolaidou, M. (2023). *Osteogenic Potential of Nano-Hydroxyapatite and*. 1–17.
- Kot, K., Kosik-bogacka, D., & Łanocha-arendarczyk, N. (2021). *Biomolecules-11-00506.Pdf*.
- Kurnia, D. F., Isa, A. F. A., Putri, S. N., & Ismail, I. (2023). *Pengaruh Penggunaan Surfaktan Non Ionik Dan Metode Terhadap Karakteristik Sistem Niosom THE EFFECT OF USING NONIONIC SURFACTANTS AND METHODS ON NIOSOM SYSTEM CHARACTERISTICS*. 2(2), 207–222.
- Larkin, P. J. (2017). Infrared and Raman Spectroscopy: Principles and Spectral Interpretation. In *Infrared and Raman Spectroscopy: Principles and Spectral Interpretation*. <https://doi.org/10.1016/C2015-0-00806-1>
- Latocha, J., Wojasiński, M., Jurczak, K., Gierlotka, S., Sobieszuk, P., & Ciach, T. (2018). Precipitation of hydroxyapatite nanoparticles in 3D-printed reactors. *Chemical Engineering and Processing - Process Intensification*, 133, 221–233. <https://doi.org/10.1016/j.cep.2018.10.001>
- Leni, A., & Hariyani, N. A. (2021). Hidroksiapatit Sebagai Salah Satu Bahan Yang Paling Umum Digunakan Pada Cangkok Tulang: Tinjauan Pustaka. *B-Dent: Jurnal Kedokteran Gigi Universitas Baiturrahmah*, 8(3), 172–178. <https://doi.org/10.33854/jbd.v8i2.894>
- Mangkuasih, S. M., & Rohmawati, L. (2021a). *Sintesis Hidroksiapatit dari Tulang Ikan Sapu-Sapu ( Hypostomus plecostomus ) dengan Metode Presipitasi*. 09(02), 229–236.
- Mangkuasih, S. M., & Rohmawati, L. (2021b). Sintesis Hidroksiapatit dari Tulang Ikan Sapu-Sapu (Hypostomus plecostomus) dengan Metode Presipitasi. *Jurnal Teori Dan Aplikasi Fisika*, 9(2), 229. <https://doi.org/10.23960/jtaf.v9i2.2818>
- Masta, N. (2020). Buku Materi Pembelajaran Scanning Electron Microscopy. *Patra Widya: Seri Penerbitan Penelitian Sejarah Dan Budaya*, 21(3), i–iii.

- Meiyanto, E., Mada, U. G., Purwanto, P., Mada, U. G., Irianti, T., & Mada, U. G. (2024). *Buku nanoteknologi dan kesehatan* (Issue August).
- Mesin, S. T., Teknik, F., Surabaya, U. N., Mesin, J. T., Teknik, F., & Surabaya, U. N. (2023). Pengaruh Suhu Dan Waktu Kalsinasi Terhadap Kemurnian Hidroksiapatit Berbasis Tulang Sapi Dengan Metode Presipitasi. *JTM: Jurnal Teknik Mesin*, *11*(01), 7–12.
- Mohd Pu'ad, N. A. S., Abdul Haq, R. H., Mohd Noh, H., Abdullah, H. Z., Idris, M. I., & Lee, T. C. (2019a). Synthesis method of hydroxyapatite: A review. *Materials Today: Proceedings*, *29*(June), 233–239. <https://doi.org/10.1016/j.matpr.2020.05.536>
- Mohd Pu'ad, N. A. S., Abdul Haq, R. H., Mohd Noh, H., Abdullah, H. Z., Idris, M. I., & Lee, T. C. (2019b). Synthesis method of hydroxyapatite: A review. *Materials Today: Proceedings*, *29*(July), 233–239. <https://doi.org/10.1016/j.matpr.2020.05.536>
- Mutmainnah, M., Chadijah, S., & Rustiah, W. O. (2017). Hidroksiapatit dari Tulang Ikan Tuna Sirip Kuning (*Tunnus albacores*) dengan Metode Presipitasi. *Al-Kimia*, *5*(2), 119–126. <https://doi.org/10.24252/al-kimia.v5i2.3422>
- Namira, N., Rahmaniah, R., & Wahyuni, A. (2021). Identifikasi Unsur Penyusun Tanah Desa Babange Kabupaten Bantaeng Menggunakan Metode X-Ray Fluorescence (Xrf). *Teknosains: Media Informasi Sains Dan Teknologi*, *15*(3), 280. <https://doi.org/10.24252/teknosains.v15i3.20300>
- Nitti, P., Kunjalukkal Padmanabhan, S., Cortazzi, S., Stanca, E., Siculella, L., Licciulli, A., & Demitri, C. (2021). Enhancing Bioactivity of Hydroxyapatite Scaffolds Using Fibrous Type I Collagen. *Frontiers in Bioengineering and Biotechnology*, *9*(February), 1–10. <https://doi.org/10.3389/fbioe.2021.631177>
- Phillips, M. L. F., & Harrison, W. T. A. (2019). Synthesis and crystal structure of calcium hydrogen phosphite, CaHPO<sub>3</sub>. *Acta Crystallographica Section E: Crystallographic Communications*, *75*(v), 997–1000. <https://doi.org/10.1107/S2056989019008235>
- Rachmad Saputra, R., Ariefin, M., Kristia, E., Diki Wahyudi, D., Rahman, A., Wayan Prema Mulya Sari, N., Puspita Sari, A., & Misbah Aisah, S. (2022).

- Aplikasi Instrumen Spektroskopi FTIR dan Spektrometri Massa di Dunia Kesehatan: Review. *Jurnal Cendekia Kimia*, 02(01), 2023. <https://e-journal.upr.ac.id/index.php/bohr/>
- Rani, S. R. A. (2022). Studi Analisis Data Difraksi Sinar-X Pada Material Zircon Pasir Alam Melalui Metode Rietveld. *JFT: Jurnal Fisika Dan Terapannya*, 9(1), 16–22. <https://doi.org/10.24252/jft.v9i1.25470>
- Rasmiyanti, Amalia, V., & Setiadji, S. (2022). Sintesis dan Karakterisasi Komposit Hidroksiapatit/Kitosan/Alginat sebagai Injectable Bone Substitute. *Seminar Nasional Kimia 2022*, 15, 82–90.
- Reid, I. R., & Bristow, S. M. (2020). Calcium and Bone. *Handbook of Experimental Pharmacology*, 262, 259–280. [https://doi.org/10.1007/164\\_2019\\_324](https://doi.org/10.1007/164_2019_324)
- Ronden, A. E., Koc, B. B., van Rooij, L., Schotanus, M. G. M., & Jansen, E. J. P. (2022). Low percentage of patients passed the ‘Back in Action’ test battery 9 months after bone-patellar tendon-bone anterior cruciate ligament reconstruction. *Journal of Clinical Orthopaedics and Trauma*, 34, 102025. <https://doi.org/10.1016/j.jcot.2022.102025>
- Sifah, L. (2020). ANALISIS KANDUNGAN DAN STRUKTUR HIDROKSIAPATIT DARI CANGKANG KERANG DARAH (*Anandara granosa*) DAN CANGKANG TELUR SEBAGAI BAHAN GIGI TIRUAN. *Eprints.Walisongo.Ac.Id*.  
<http://eprints.walisongo.ac.id/id/eprint/10408/%0Ahttps://eprints.walisongo.ac.id/id/eprint/10408/1/FULL.pdf>
- Siswoyo, S., Kumalasari, K., Wulan, S., & Afriani, F. (2020). Fabrikasi Perancah Berpori Hidroksiapatit dari Tulang Ikan Tenggiri dengan Alginat Sebagai Binder Alami: Sebuah Kajian Naratif. *Jurnal Pendidikan Fisika Dan Sains (JPFS)*, 3(2), 35–42. <https://doi.org/10.52188/jpfs.v3i2.82>
- Sukmana, I., Eka Risano, A. Y., Arif Wicaksono, M., & Adi Saputra, R. (2022). Perkembangan dan Aplikasi Biomaterial dalam Bidang Kedokteran Modern: A Review. *INSOLOGI: Jurnal Sains Dan Teknologi*, 1(5), 635–646. <https://doi.org/10.55123/insologi.v1i5.1037>
- Sulaiman, S., Jamaludin, N. F. A., & Kabbashi, N. A. (2019). Development of

- CaO/PVA catalyst from fish bone for biodiesel production. *Bulletin of Chemical Reaction Engineering and Catalysis*, 14(1), 153–157. <https://doi.org/10.9767/bcrec.14.1.3327.153-157>
- Szwed-Georgiou, A., Płociński, P., Kupikowska-Stobba, B., Urbaniak, M. M., Rusek-Wala, P., Szustakiewicz, K., Piszko, P., Krupa, A., Biernat, M., Gazińska, M., Kasprzak, M., Nawrotek, K., Mira, N. P., & Rudnicka, K. (2023). Bioactive Materials for Bone Regeneration: Biomolecules and Delivery Systems. *ACS Biomaterials Science and Engineering*, 9(9), 5222–5254. <https://doi.org/10.1021/acsbiomaterials.3c00609>
- Tariq, U., Haider, Z., Ali, J., Tufail, K., & Hussain, R. (2016). Determination of Calcium to Phosphate Ratio in Hydroxyapatite Extracted from Bovine Bone using LIBS Soliton View project Plasmonics View project Determination of Calcium to Phosphate Ratio in Hydroxyapatite Extracted from Bovine Bone using LIBS. *Buletin Optik*, 2, 2504–8546. <https://www.researchgate.net/publication/312021222>
- Tegal, U. P., Budidaya, P., Gurame, I., & Meningkatkan, D. (2023). *Pelatihan Budidaya Ikan Gurame dalam Meningkatkan Kualitas Produksi*. 1(5), 306–312.
- Wahab, W. (2022). Penggunaan xenograft sebagai bahan cangkok tulang pada perawatan periodontal regeneratif: systematic review. *Fakultas Kedokteran Gigi Universitas Hasannuddin*.
- Wang, B., Zhang, Z., & Pan, H. (2023). Bone Apatite Nanocrystal: Crystalline Structure, Chemical Composition, and Architecture. *Biomimetics*, 8(1). <https://doi.org/10.3390/biomimetics8010090>
- Wardani, S. C., Rujati, B., Nuraprilla, E., Salsabila, H., Wibowo, M. A., Rahmatina, S. P., Sinta, K., & Wardani, C. (2024). *PENGGANTI CANGKOK UNTUK REGENERASI TULANG DALAM KEDOKTERAN GIGI: STUDI LITERATUR SYNTHESIS OF EGGSHELL-DERIVED NANOHYDROXYAPATITE AS A SUBSTITUTES GRAFTS FOR BONE REGENERATION IN DENTISTRY: A LITERATURE REVIEW PENDAHULUAN Tulang adalah bentuk khusus dar*. 8(1), 109–122.

- Zastulka, A., Clichici, S., Tomoaia-Cotisel, M., Mocanu, A., Roman, C., Olteanu, C. D., Culic, B., & Mocan, T. (2023). Recent Trends in Hydroxyapatite Supplementation for Osteoregenerative Purposes. *Materials*, *16*(3). <https://doi.org/10.3390/ma16031303>
- Zhang, Y., Wang, Q., Li, C., Piao, Y., Hou, N., & Hu, K. (2022). Characterization of surface and subsurface defects induced by abrasive machining of optical crystals using grazing incidence X-ray diffraction and molecular dynamics. *Journal of Advanced Research*, *36*, 51–61. <https://doi.org/10.1016/j.jare.2021.05.006>
- Zhu, Y., Gao, Z., Lee, B., & Jun, Y. S. (2022). Process-Specific Effects of Sulfate on CaCO<sub>3</sub> Formation in Environmentally Relevant Systems. *Environmental Science and Technology*, *56*(12), 9063–9074. <https://doi.org/10.1021/acs.est.1c08898>