

DAFTAR PUSTAKA

- Achal, V., Mukherjee, A., Basu, P. C., and Reddy, M. S. (2009). Lactose mother liquor as an alternative nutrient source for microbial concrete production by *Sporosarcina pasteurii*. *J. Ind. Microbiol. Biotechnol*, 36, 433–438. doi: 10.1007/s10295-008-0514-7
- Achal, V., Mukherjee, A., and Reddy, M. S. (2010). Biocalcification by *Sporosarcina pasteurii* using corn steep liquor as the nutrient source. *Ind Biotechnol*, 6, 170–174. doi: 10.1089/ind.2010.6.170
- Achal, V., and Pan, X. (2014). Influence of calcium sources on microbially induced calcium carbonate precipitation by *Bacillus* sp. CR2. *Appl Biochem Biotechnol*, 173, 307-317.
- Achal, V., Mukherjee, A., Kumari, D., and Zhang, Q. (2015). Biomineralization for sustainable construction—a review of processes and applications. *Earth. Sci. Rev*, 148, 1–17. doi: 10.1016/j.earscirev.2015.05.008
- Achal, V., and Mukherjee, A. (2015). A review of microbial precipitation for sustainable construction. *Constr Build Mater*, 93, 1224–1235. doi: 10.1016/j.conbuildmat.2015.04.051
- Adam, A. K., Limonu, M., & Ahmad, L. (2023). Analisis Kerusakan Mikrobiologi Ikan Roa (*Hemirhamphus* sp) Asap Yang Dijual Di Pasar Tradisional Kota Gorontalo. *Jambura Journal of Food Technology*, 5(01), 131-141.
- Ahmad, A., Rautaray, D., dan Sastry, M. (2004). Calcite crystals of variable morphology by the reaction of aqueous Ca^{2+} ions with fungi. *Adv. Funct. Mater.*, 14, 1075-1080. doi: 10.1002/adfm.200400005
- Ahmadi, A. E. S. (2022). Keanekaragaman kapang endofit tanaman pala (*myristica fragrans*) berdasarkan daerah *internal transcribed spacer* (its) rdna. *Bachelor's thesis*. Fakultas Sains dan Teknologi UIN Syarif Hidayatullah Jakarta.
- Aini, F., & Ihsan, M. (2019). Isolasi dan Identifikasi Jamur Patogen pada Tanaman Nanas (*Ananas comosus* (L). Merr) Varietas Tangkit. *BIO-SITE| Biologi dan Sains Terapan*, 5(01), 12-20.
- Alshaeer, Honin Ali Yahya., Irwan J.M., Alshalif, Abdullah Faisal., Noman, Efaq Ali., Amran, Mugahed., Gamil, Yaser., Alhokabi, Abdulmajeed., Al-Gheethi, Adel Ali. (2023). Optimisation of compressive strength of foamed concrete with a novel *Aspergillus iizukae* EAN605 fungus.

Construction Materials, 19.
<https://doi.org/10.1016/j.cscm.2023.e02400>.

- Alshalif, A. F., Irwan, J. M., Othman, N., & Anneza, L. H. (2016). Isolation of sulphate reduction bacteria (SRB) to improve compress strength and water penetration of bio-concrete. In *MATEC web of conferences*, 47, p. 01016. EDP Sciences.
- Al-Shuhaib, M. B. S., Al-Kaaby, H. N., & Alwan, S. L. (2019). A highly efficient electrophoretic method for discrimination between two *Neoscytalidium* species using a specific fungal internal transcribed spacer (ITS) fragment. *Folia microbiologica*, 64(2), 161-170
- Alves L, Alves L, Mello M, Barros SD. (2019). Characterization of Bioconcrete and the Properties for Self-Healing. In: *Multidisciplinary Digital Publishing Institute Proceedings*, 38 (1): 4-12.
- Aminah, A., Ramadini, R., & Naid, T. (2019). Analisis Cemarkan DNA Tikus pada Bakso Daging Sapi yang Beredar di Makassar dengan Metode Polymerase Chain Reaction (PCR). *Jurnal Farmasi Galenika (Galenika Journal of Pharmacy) (e-Journal)*, 5(1), 93–100. <https://doi.org/10.22487/j24428744.2019.v5.i1.12036>.
- Angst, U. M. (2018). Challenges and opportunities in corrosion of steel in concrete. *Materials and Structures*, 51, 1-20.
- Anissa, R. K., Lisdiana, L., & Widyayanti, A. T. (2024). Optimasi Metode Nested PCR untuk Deteksi *Vibrio parahaemolyticus* AHPND pada Udang Vaname (*Litopenaeus vannamei*). *LenteraBio: Berkala Ilmiah Biologi*, 13(1), 1-13.
- Aparna, D., Anuja, K., & Joe, R. (2019). Effect of mycelium on self-healing bioconcrete. In *Bridge Engineering Institute Conference (BEI)*, 22-25.
- Aprianti, E. (2017). A huge number of artificial waste material can be supplementary cementitious material (SCM) for concrete production—a review part II. *J Clean. Prod.* 142, 4178–4194. doi: 10.1016/j.jclepro.2015. 12.115.
- Apriliani, W. (2022). Identifikasi Penyebab Penyakit Hawar Daun Pada Tanaman Jagung Manis dan Hibrida Berdasarkan Karakter Morfologi dan Molekuler. *Skripsi*. Fakultas Pertanian, Universitas Lampung, Bandar Lampung.

- Ariyanti, Y., & Sianturi, S. (2019). Ekstraksi DNA total dari sumber jaringan hewan (Ikan Kerapu) menggunakan metode kit for animal tissue. *Journal of science and applicative technology*, 3(1), 40-45.
- Artanti, A. (2020). Modul pembelajaran biologi SMA kelas X: sistem klasifikasi.
- Ash, G. J., Stodart, B., Sakuanrungsirikul, S., Anschaw, E., Crump, N., Hailstones, D., & Harper, J. D. (2010). Genetic characterization of a novel *Phomopsis* sp., a putative biocontrol agent for *Carthamus lanatus*. *Mycologia*, 102(1), 54-61).
- Asim, M., Mughal, T. L., Cheema, S., Tahir, M., Mughal, S., Mahmood, A., ... & Kashif, M. R. (2022). Influence of Crack Width on Healing Performance and Mechanical Properties of Micro-Organisms Based Self Healing Concrete. *Journal of Applied Engineering Sciences*, 12(2).
- Badan Standarisasi Nasional. (2002). SNI-03-2847-2002 Tata Cara Perhitungan Struktur Beton Bertulang Gedung. Bandung: Badan Standarisasi Nasional.
- Bang, S.S., Galinat, J.K., Ramakrishnan, V. (2001). Calcite precipitation induced by polyurethane-immobilized *Bacillus pasteurii*. *Enzyme Microb. Technol*, 28 404–409 .
- Barnett, H.L. and B.B. Hunter. (1998). *Illustrated marga of imperfect fungi*. 4th ed. USA: Prentice-Hall, Inc.
- Barnett, H.L. (1955). *Illustrated marga of imperfect fungi*. 2nd ed. Minneapolis: Burgess Publishing Company.
- Ben Hassine Ben Ali, M., & Garrett Kluthe, B. (2016). Reliable protocols for DNA extraction from freeze-dried macrofungal samples used in molecular macrofungal systematics studies. *Current Research in Environmental and Applied Mycology*, 6(1), 45-50
- Bhina MR, Salim M, Masroor MS. (2019). An overview on fungi as selfhealing agent in biomineralization of calcite. *Int Res J Eng Techno*, 6: 2980-2989.
- Bindschedler S, Cailleau G, Verrecchia E. (2016). Role of fungi in the biomineralization of calcite. *Minerals*, 6 (2): 41-59.
- Bossio A, Lignola GP, Fabbrocino F, Monetta T, Prota A, Bellucci F, Manfredi G. (2017). Nondestructive assessment of corrosion of reinforcing bars through surface concrete cracks. *Struct Concrete*, 18 (1): 104-117

- Burford E.P., Hillier S. and Gadd G.M. (2006). Biomineralization of fungal hyphae with calcite (CaCO_3) and calcium oxalate mono- and dihydrate in carboniferous limestone microcosms. *Geomicrobiol. J.*, 23: 599-611.
- Castro-Alonso, M. J., Montañez-Hernandez, L. E., Sanchez-Muñoz, M. A., Macias Franco, M. R., Narayanasamy, R., & Balagurusamy, N. (2019). Microbially induced calcium carbonate precipitation (MICP) and its potential in bioconcrete: microbiological and molecular concepts. *Frontiers in Materials*, 6, 126.
- Chen Q, Zhang KE, Zhang G, Cai L. (2015) A polyphasic approach to characterise two novel species of *Phoma* (Didymellaceae) from China. *Phytotaxa* 197: 267–281. 10.11646/phytotaxa.197.4.4.
- Chen, B., Sun, W., Sun, X., Cui, C., Lai, J., Wang, Y., & Feng, J. (2021). Crack sealing evaluation of self-healing mortar with *Sporosarcina pasteurii*: Influence of bacterial concentration and air-entraining agent. *Process Biochemistry*, 107, 100-111.
- Choiriyah, Chumaidatul. (2020). Optimasi Amplifikasi ITS rDNA Khamir Menggunakan Metode PCR Yang Diisolasi Dari Sarang Lebah Madu Raksasa (*Apis dorsata*). *Undergraduate thesis*. UIN Sunan Ampel Surabaya.
- Cuenca, E., & Ferrara, L. (2017). Self-healing capacity of fiber reinforced cementitious composites. State of the art and perspectives. *KSCE Journal of Civil Engineering*, 21, 2777-2789.
- Davies R, Teall O, Pilegis M, Kanellopoulos A, Sharma T, Jefferson A, Gardner D, Al-Tabbaa A, Paine K, Lark R. (2018). Large scale application of self-healing concrete: design, construction, and testing. *Front Mater* 5:51. <https://doi.org/10.3389/fmats.2018.00051>
- Davis, C. (2014). Enumeration of probiotic strains: review of culture-dependent and alternative techniques to quantify viable bacteria. *Journal of microbiological methods*, 103, 9-17.
- Deacon, L. J., Pryce-Miller, E. J., Frankland, J. C., Bainbridge, B. W., Moore, P. D., & Robinson, C. H. (2006). Diversity and function of decomposer fungi from a grassland soil. *Soil Biology and Biochemistry*, 38(1), 7-20.
- Dewanata, P. A., & Mushlih, M. (2021). Differences in DNA purity test using UV-Vis spectrophotometer and nanodrop spectrophotometer in type 2 diabetes mellitus patients. *Indonesian Journal of Innovation Studies*, 15, 10-21070.

- De Belie, N., Gruyaert, E., Al-Tabbaa, A., Antonaci, P., Baera, C., Bajare, D., ... & Jonkers, H. M. (2018). A review of self-healing concrete for damage management of structures. *Advanced materials interfaces*, 5(17), 1800074.
- Dhami, K.N., Quirin, M.E.C., Mukherjee, A. (2017). Carbonate biomineralization and heavy metal remediation by calcifying fungi isolated from karstic caves. *Ecol. Eng.* 103, 106–117. <https://doi.org/10.1016/j.ecoleng.2017.03.007>.
- Dharmayanti NLP. (2011). Filogenetika molekuler: metode taksonomi organisme berdasarkan sejarah evolusi. *Wartazoa*. 21(1):1-10
- Dugan. (2006). *The Identification Of Fungi*. USA:APS Press.
- Durga, C. S. S., Ruben, N., Chand, M. S. R., Indira, M., & Venkatesh, C. (2021). Comprehensive microbiological studies on screening bacteria for self-healing concrete. *Materialia*, 15, 101051.
- Elkhateeb, Waill., Elnahas, M. O., Daba, G. (2021). Microbial induced mineralization of calcium carbonate for self-healing concrete. *Asian Journal of Natural Product Biochemistry*, 19(1).
- Elkhateeb, Waill., Elnahas, M. O., Daba, G. (2022). Fungal Calcium Carbonate Mineralization as a Microbial Approach for Concrete Self-Healing. *Geomicrobiology Journal*, 39:7, 631-636. DOI: [10.1080/01490451.2022.2060383](https://doi.org/10.1080/01490451.2022.2060383)
- Fang C, Kumari D, Zhu X, Achal V. (2018). Role of fungal-mediated mineralization in biocementation of sand and its improved compressive strength. *Int Biodeterior Biodegrad*, 133: 216-220.
- Fahlevi, M. R., Bakti, D., Sitepu, S. F., & Prasetyo, A. E. (2018). Karakterisasi Molekuler *Elaeidobius kamerunicus* Faust.(Coleoptera: Curculionidae) Asal Sumatera Utara Menggunakan Metode Amplified Fragment Length Polymorphism (AFLP): Insect Molecular characterization of *Elaeidobius kamerunicus* Faust. (Coleoptera; Curculionidae) From North Sumatra Using Amplified Fragment Length Polymorphism (AFLP). *Jurnal Agroekoteknologi (JOA)*. Fakultas Pertanian USU, 6(2), 259-270.
- Fatchiyah, A., Widyarti, L. E., & Rahayu, S. (2011). *Biologi molekular prinsip dasar analisis*. Malang: Erlangga.
- Febriani, R. (2021). Identifikasi Morfologi dan Molekuler Cendawan Penyebab Gejala Mati Akar pada Tanaman Kakao (*Theobroma*

- cacao L.) dari Beberapa Kabupaten. *Doctoral dissertation*. Universitas Hasanuddin.
- Felsenstein, J. (1981). Evolutionary trees from DNA sequences: a maximum likelihood approach. *J. Mol Evol*, 17. Pp. 368 – 376.
- Fomina M., Hillier S., Charnock J.M., Melville K., Alexander I.J. and Gadd G.M. (2005). Role of oxalic overexcretion in transformations of toxic metal minerals by *Beauveria caledonica*. *Appl. Environ. Microbiol.* 71: 371-381.
- Gandjar, I., R.A. Samson, K. van den Tweel-Vermeulen, A. Oetari, dan I. Santoso. (1999). *Pengenalan kapang tropik umum*. Jakarta: Yayasan Obor Indonesia.
- Gandjar I, Samson RA, Tweel-Vermeulen Kvd, Oetari A, Santoso I. (2000). *Pengenalan Kapang Tropik Umum*. Edisi Pertama. Jakarta (ID):Yayasan Obor Indonesia
- Gandjar I, Sjamsuridzal W, Octari A. (2006). *Mikologi: Dasar dan Terapan* .Jakarta (ID): Yayasan Obor Indonesia.
- Gautam, A. K., Verma, R. K., Avasthi, S., Sushma, Bohra, Y., Devadatha, B., ... & Suwannarach, N. (2022). Current insight into traditional and modern methods in fungal diversity estimates. *Journal of Fungi*, 8(3), 226.
- Gebauer, D., Gunawidjaja, P.N., Ko, J.Y., Bacsik, Z., Aziz, B., Liu, L., Hu, Y., Bergstrom, L., Tai, C.W., Sham, T.K., Eden, M., Hedin, N. (2010). Proto-calcite and proto-vaterite in amorphous calcium carbonates. *Angew. Chem. Int. Ed. Engl*, 49, 8889–8891.
- Gharieb MM, Sayer JA, Gadd GM. (1998). Solubilization of natural gypsum (CaSO₄·2H₂O) and formation of calcium oxalate by *Aspergillus niger* and *Serpula himantoides*. *Mycol Res*, 102: 825-830.
- Gokarn, K. (2016). Ethanol extraction method for DNA isolation from *Mycobacterium smegmatis*. *International Journal of Current Research*. 8(9):39013-39015.
- Gomes, E. A., Kasuya, M. C. M., Barros, E. G., Borges, A. C., dan Araujo, E. F. (2002). Polymorphism in The Internal Transcribed Spacer (ITS) of The Ribosomal DNA of 26 Isolates of Ectomycorrhizal Fungi, 483, 477-483.
- Hamilton, G. (2006). *Kingdoms of Life: Fungi*. Milliken.

- Harahap, M. R. (2018). Elektroforesis: Analisis elektronika terhadap biokimia genetika. *CIRCUIT: Jurnal Ilmiah Pendidikan Teknik Elektro*, 2(1).
- Harshali J, Mitali S, Neha A, Pragati B. (2016). Bio concrete and bacteria-based self-healing concrete. *Int J Res Eng Technol*, 5: 95-99.
- Hidayat, T. dan Adi P. (2008). Kajian Filogenetika Molekuler dan Peranannya dalam Menyediakan Informasi Dasar untuk Meningkatkan Kualitas Sumber Genetik Anggrek. *Jurnal AgroBiogen* 4(1): 35-40.
- Hou, W., Lian, B., & Zhang, X. (2011). CO₂ mineralization induced by fungal nitrate assimilation. *Bioresource technology*, 102(2), 1562-1566.
- Hou, L., Hernández-Restrepo, M., Groenewald, J. Z., Cai, L., & Crous, P. W. (2020). Citizen science project reveals high diversity in Didymellaceae (Pleosporales, Dothideomycetes). *MycoKeys*, 65, 49.
- Huda-Shakirah, A.R., Mohamed Nor, N.M.I., Zakaria, L. *et al.* (2022). *Lasiodiplodia theobromae* as a causal pathogen of leaf blight, stem canker, and pod rot of *Theobroma cacao* in Malaysia. *Sci Rep* 12, 8966. <https://doi.org/10.1038/s41598-022-13057-9>.
- Hutami, R., Bisyr, H., Sukarno, S., Nuraini, H., & Ranasasmita, R. (2018). Ekstraksi DNA dari daging segar untuk analisis dengan metode loop-mediated isothermal amplification (LAMP). *Jurnal Agroindustri Halal*, 4(2), 209-216..
- Imanina, H. A. (2022). Penapisan dan identifikasi kapang endofit tanaman kayu putih (*Melaleuca cajuputi*) asal Yogyakarta dan pulau buru, Maluku sebagai antibakteri. *Bachelor's thesis*. Fakultas Sains dan Teknologi UIN Syarif Hidayatullah Jakarta).
- Indrawati, G., Robert, A. S., Karin Van, D. T., Ariyanti, O., Iman, S. (1999). Pengenalan Kapang Tropik Umum. DKI Jakarta : Yayasan Obot Indonesia.
- Indriati, N., Priyanto, N., & Radestya, T. (2010). Penggunaan dichloran rose bengal chloramphenicol agar (DRBC) sebagai media tumbuh kapang pada produk perikanan. *Jurnal Pascapanen dan Bioteknologi Kelautan dan Perikanan*, 5(2).
- Indriyanti, D. R., Bintari, S. H., Setiati, N., Widiyaningrum, P., & Dewi, P. (2024). Pembiakan Jamur Agensia Hayati *Beauveria Bassiana*, *Metarhizium Anisopliae* dan *Trichoderma* Sp. Pada Media Limbah

- Jagung. *Bookchapter Alam Universitas Negeri Semarang*, (4), 44-75.
- Jiang, H. B., Hyde, K. D., Jayawardena, R. S., Doilom, M., Xu, J., & Phookamsak, R. (2019). Taxonomic and phylogenetic characterizations reveal two new species and two new records of *Roussoella* (Roussoellaceae, Pleosporales) from Yunnan, China. *Mycological Progress*, 18, 577-591..
- Jin C, Yu R, Shui, Z. (2018). Fungi: A neglected candidate for the application of self-healing concrete. *Front Built Environ*, 4 (62): 1-8. DOI: <https://doi.org/10.3389/fbuil.2018.00062>.
- Jin C, Yu R, Shui, Z. (2018). Fungi: A neglected candidate for the application of self-healing concrete. *Front Built Environ*, 4 (62): 1-8. DOI: <https://doi.org/10.3389/fbuil.2018.00062>
- Jonkers, H. M., and Schlangen, E. (2009). "A two component bacteria-based on self-healing concrete," in Concrete Repair, Rehabilitation, and Retrofitting II: 2nd International Conference on Concrete Repair, Rehabilitation and Retrofitting, eds M. G. Alexander, H. Beushausen, F. Dehn, and P. Moyo (Cape Town: CRC Press). doi: 10.1201/9781439828403.ch27
- Jonkers, HM., A. Thijssen, G. Muyzer, O. Copuroglu, E. Schlangen. (2010). Application of bacteria as self-healing agent for the development of sustainable concrete. *Ecol. Eng.* 36 230–235.
- Jonkers, H. M. (2011). Bacteria-based self-healing concrete. *Heron*. 56, 1–12.
- Jumadi, O., M. Junda., M. W. 2021. *Trichoderma dan Pemanfaatan*. Jurusan Biologi FMIPA UNM: Makassar.
- Kartini, A. R. (2012). Karakterisasi molekuler padi trasgenik dengan beberap metode isolasi DNA. *Skripsi*. Departemen Biokimia. Fakultas Matematika dan Ilmu Pengetahuan Alam, Institut Pertanian Bogor. Bogor.
- Kaur, G., Siddique, R., Rajor, A. (2013a). Micro-structural and metal leachate analysis of concrete made with fungal treated waste foundry sand, *Constr. Build. Mater.* 38 94–100, <https://doi.org/10.1016/j.conbuildmat.2012.07.112>.
- Kaur, G., Siddique, R., Rajor, A. (2013b) Influence of fungus on properties of concrete made with waste foundry sand, *J. Mater. Civ. Eng.* 25 484–490, [https://doi.org/10.1061/\(asce\)mt.1943-5533.0000521](https://doi.org/10.1061/(asce)mt.1943-5533.0000521).

- Kaur, G., Siddique, R., Rajor, A. (2012) Properties of concrete containing fungal treated waste foundry sand, *Constr. Build. Mater*, 29 82–87, <https://doi.org/10.1016/j.conbuildmat.2011.08.091>.
- Keirnan, E. C., Tan, Y. P., Laurence, M. H., Mertin, A. A., Liew, E. C., Summerell, B. A., & Shivas, R. G. (2021). Cryptic diversity found in Didymellaceae from Australian native legumes. *MycoKeys*, 78, 1.
- Khelifi W, Bencedira S, Azab M, Riaz MS, Abdallah M, Baki ZA, Krauklis AE, Aouissi HA. (2022). Conservation environments' effect on the compressive strength behaviour of wood-concrete composites. *Materials* ,15:3572. <https://doi.org/10.3390/ma15103572>Return to ref 1 in article
- Khushnood, R. A., Ali, A. M., Bhatti, M. F., & Khan, H. A. (2022). Self-healing fungi concrete using potential strains *Rhizopus oryzae* and *Trichoderma longibrachiatum*. *Journal of Building Engineering*, 50, 104155.
- Kirk, P. M., Cannon, P. F., Minter, D. W., and Stalpers, J. A. (2008). *Dictionary of Fungi. Tenth edition*. Trowbrige, United Kingdom: Cornwell Press
- Kress, W.J., Prince, L.M. & Williams, K.J. (2002) The phylogeny and a new classification of the gingers (Zingiberaceae): evidence from molecular data, *Ann. J. Bot.* 89, 1682-1696.
- Krishnapriya, S., Babu, DV. (2015). Isolation and identification of bacteria to improve the strength of concrete. *Microbiol. Res*, 174: 48-55.
- Kusnadi, J., Arumingtyas, E. L., & Hakiki, H. M. (2022). *Aplikasi Teknik PCR untuk Autentikasi Halal*. Universitas Brawijaya Press..
- Larasati, S. J. H., Sabdono, A., & Sibero, M. T. (2021). Identifikasi molekuler kapang asosiasi spons menggunakan metode DNA barcoding. *Journal of Marine Research*, 10(1), 48-54.
- Lestari, D. A., Azrianingsih, R., & Hendrian, H. (2018). Filogenetik jenis-jenis Annonaceae dari Jawa Timur koleksi Kebun Raya Purwodadi berdasarkan coding dan non-coding sekuen DNA. *Journal of Tropical Biodiversity and Biotechnology*, 3(1), 1-7.
- Li Q, Csetenyi L, Gadd GM. (2014). Biomineralization of metal carbonates by *Neurospora crassa*. *Environ Sci Technol*, 48 (24): 14409-14416.
- Li Q, Csetenyi L, Paton GI, Gadd GM. (2015). CaCO₃ and SrCO₃ bioprecipitation by fungi isolated from calcareous soil. *Environ Microbiol* 17 (8): 3082-3097.

- Li, Q., Liu, D., Chen, C., Shao, Z., Wang, H., Liu, J., et al., (2019). Experimental and geochemical simulation of nickel carbonate mineral precipitation by carbonate-laden ureolytic fungal culture supernatants. *Environ. Sci. Nano*. 6, 1866–1875.
- Lin, J., Kennedy, S. H., Svarovsky, T., Rogers, J., Kemnitz, J. W., Xu, A., & Zondervan, K. T. (2009). High-quality genomic DNA extraction from formalin-fixed and paraffin-embedded samples deparaffinized using mineral oil. *Analytical biochemistry*. 395(2): 265-267.
- Liu, J. K., Phookamsak, R., Dai, D. Q., Tanaka, K., JONES, E. G., Xu, J. C., ... & Hyde, K. D. (2014). Roussoellaceae, a new pleosporalean family to accommodate the genera *Neorousoella* gen. nov., *Rousoella* and *Rousoellopsis*. *Phytotaxa*, 181(1), 1-33
- Limbong, M. F., Setyati, W. A., Sedjati, S., & Sibero, M. T. (2024). Potensi Metabolit Kapang Endofit Mangrove *Rhizophora apiculata* sebagai Anti-Staphylococcus epidermidis. *Jurnal Kelautan Tropis*, 27(1), 170-178.
- Luo, J., Walsh, E., Naik, A., Zhuang, W., Zhang, K., Cai, L., & Zhang, N. (2014). Temperate pine barrens and tropical rain forests are both rich in undescribed fungi. *PLoS One*, 9(7), e103753.
- Luo, J., Chen, X., Crump, J., Zhou, H., Davies, D. G., Zhou, G., Zhang, N., & Jin, C. (2017). Interactions of fungi with concrete: Significant importance for bio-based self-healing concrete. *ArXiv*, 1–23.
- Luo, J., Chen, X., Crump, J., Zhou, H., Davies, D.G., Zhou, G., Zhang, N., Jin, C. (2018). Interactions of Fungi with concrete: significant importance for bio-based self-healing concrete. *Construct. Build. Mater*, 164, 275–285.
- Magan N. (2007). Fungi in extreme environments. *The Mycota*, 4: 85-103.
- Mamlouk, M.S. & Zaniewski, J.P., (2016). Materials for Civil and Construction Engineers, *Hoboken, NJ*: Prentice Hall.
- Mamo G, Mattiasson B. (2019). Alkaliphiles: The Emerging Biological Tools Enhancing Concrete Durability. In: Mamo G., Mattiasson B. (eds) *Alkaliphiles in Biotechnology. Advances in Biochemical Engineering/Biotechnology*, 172: 293- 342. Springer, Cham.
- Martuscelli C, Soares C, Camões A, Lima N. (2020). Potential of fungi for concrete repair. *Proc Manufacturing*, 46: 180-185.
- Masaphy S., Zabari L., Pastrana J. and Dultz S. (2009). Role of fungal mycelium in the formation of carbonate concretions in growing

- media- An investigation by SEM and Synchrotron based X-ray tomographic microscopy. *Geomicrobiol. J.*, 26: 442-450.
- Mawaddah, R., Lestari, P., & Karima, R. (2022). Optimasi Metode Sanger Sequencing Untuk Deteksi Polimorfisme Gen Mthfr (C677t) pada Pasien Lla Anak. *Prosiding Semnas Hilirisasi Hasil Penelitian Dan Pengabdian Masyarakat Tahun 2022*. 150-159.
- Menon, R.R. et al., (2017). Screening of Fungi for the application of self-healing concrete. *ArXiv*, p.21.
- Menon RR, Luo J, Chen X, Zhou H, Liu Z, Zhou G, Zhang N, Jin C. (2019). Screening of fungi for potential application of self-healing concrete. *Sci Rep*, 9(1): 1-12.
- Mihashi, H., & Nishiwaki, T. (2012). Development of engineered self-healing and self-repairing concrete-state-of-the-art report. *Journal of Advanced Concrete Technology*, 10(5), 170-184.
- Monteiro, P. J. M., Miller, S. A., & Horvath, A. (2017). Towards sustainable concrete. *Nature Materials*, 16(7), 698–699. doi:10.1038/nmat4930
- Morindya, R. (2022). Optimasi Metode Ekstraksi DNA untuk Analisis Genomik Nematoda Puru Akar Padi (*Meloidogyne graminicola*) Menggunakan PCR (*Polymerase Chain Reaction*) dan Sanger Sequencing. *Doctoral dissertation*. Universitas Gadjah Mada.
- Munawati, R., Octavia, B., & Cahyandaru, N. (2021). Biodiversitas Kapang pada Proses Biodeteriorasi Batuan Candi Borobudur. *Jurnal Konservasi Cagar Budaya*, 15(2), 1-17.
- Nasir. (2003). *Mikrobiologi Farmasi Dasar*. Makasar: Universitas Hasanudin.
- Nugroho, N. A. (2022). Pengaruh Laju Gas CO₂ Dan Ph Pada Pembentukan Polimorf Precipitated Calcium Carbonat Dari Cangkang Keong Emas. *Doctoral dissertation*. UPN Veteran Jawa Timur
- Noman, E.A., A. Al-Gheethi, N.N.N.A. Rahman, H. Nagao, M. Ab. Kadir, (2016). Assessment of relevant fungal species in clinical solid wastes, *Environ. Sci. Pollut. Res.* 23, 19806–19824, <https://doi.org/10.1007/s11356-016-7161-8>.
- Noor, S., Pramono, H., & Aziz, S. (2014). Deteksi keragaman spesies bakteri metanogen rumen sapi menggunakan kloning gen 16S rRNA dan sekuensing. *Scripta Biologica*, 1(4).

- Pacheco-Torgal, F., & Labrincha, J. A. (2013). Biotech cementitious materials: Some aspects of an innovative approach for concrete with enhanced durability. *Construction and Building Materials*, 40, 1136-1141.
- Pal, A., Labuza, T. P., & Diez-Gonzalez, F. (2008). Shelf life evaluation for ready-to-eat sliced uncured turkey breast and cured ham under probable storage conditions based on *Listeria monocytogenes* and psychrotroph growth. *International Journal of Food Microbiology*, 126(1-2), 49-56.
- Pangesti, F., Octavia, B., & Cahyandaru, N. (2022). Studi Keanekaragaman Kapang Pada Proses Biodeteriorasi Batuan Candi Mendut. *Jurnal Konservasi Cagar Budaya*, 16(1), 23-38.
- Pangestika, Y., Budiharjo, A., & Kusumaningrum, H. P. (2015). Analisis filogenetik *Curcuma zedoaria* (temu putih) berdasarkan gen *Internal Transcribed Spacer* (ITS). *Jurnal Akademika Biologi*, 4(4), 8-13.
- Pasquale V, Fiore S, Hlayem D, Lettino A, Huertas FJ, Chianese E, Dumontet S. (2019). Biomineralization of carbonates induced by the fungi *Paecilomyces inflatus* and *Plectosphaerella cucumerina*. *Int Biodeterior Biodegrad*, 140: 57-66.
- Pitt, J.I. and Hocking, A.D. (1985). *Fungi and Food Spoilage*. Academic Press, Sydney. 36 pp.
- Purnamasari, M. I., Prihatna, C., Gunawan, A. W., Suwanto, A. (2012). Isolasi dan identifikasi secara molekuler *Ganoderma* spp. yang berasosiasi dengan penyakit busuk pangkal batang di kelapa sawit. *Jurnal Fitopatologi Indonesia*. 8 (1): 9-15.
- Putra, G. W. K., Ramona, Y., & Proborini, M. W. (2020). Eksplorasi dan identifikasi mikroba yang diisolasi dari rhizosfer tanaman stroberi (*Fragaria x ananassa* Dutch.) di Kawasan Pancasari Bedugul. *Journal of Biological Sciences*, 7(2), 205-213.
- Putri, D. A. (2019). Isolasi dan pengukuran produktivitas enzim urease bakteri ureolitik sebagai agen *biogrouting* dari sampel sedimen Sungai Citarum di Muara Gembong Bekasi. *Skripsi*. Fakultas Sains dan Teknologi Universitas Islam Negeri Syarif Hidayatullah Jakarta.
- Qian, X., Fang, C., Huang, M., Achal, V., (2017). Characterization of fungal-mediated carbonate precipitation in biomineralization of chromate and lead from aqueous solution and soil. *J. Clean. Prod*, 164, 198–208.

- Qian C, Zhou H, Wang K. (2019). Factors affecting morphology of microbially induced calcium carbonate. *J Microbiol Exp* 7 (2): 101-14.
- Rakhmana, S., Saryono, Titania, T. N. (2015). Ekstraksi DNA dan Amplifikasi ITS rDNA Isolat Fungi Endofit LBKURCC67 Umbi Tanaman Dahlia (*Dahlia variabilis*). *JOM FMIP*, 2(1), 145-151.
- Rakhmawati, A., & Prihatini, I. (2016). Isolasi dan Identifikasi Kapang Endofit dari Pohon Sengon Provenan Kepulauan Solomon Berdasarkan Morfologi dan Molekuler (Analisis Rdna Its (*Internal Transcribed Spacer*)). *Kingdom (The Journal of Biological Studies)*, 5(6), 15-27
- Rautaray D, Ahmad A, Sastry M. (2004). Biological synthesis of metal carbonate minerals using fungi and actinomycetes. *J Mater Chem*, 14: 2333-2340.
- Rahayu, F., Saryono, & Titania, T. N. (2015). Isolasi DNA dan Amplifikasi PCR Daerah ITS rDNA Fungi Endofit Umbi Tanaman Dahlia (*Dahlia variabilis*) LBKURCC69. *JOM FMIPA*. 2(1), pp. 100-106.
- Rieger, J., Frechen, T., Cox, G., Heckmann, W., Schmidt, C., & Thieme, J. (2007). Precursor structures in the crystallization/precipitation processes of CaCO_3 and control of particle formation by polyelectrolytes. *Faraday discussions*, 136, 265-277.
- Rifai, MA. (1969). A revision of the genus *Trichoderma*. *Mycological Papers*. 1-56.
- Rismawati, S. I. (2019). Isolasi Gen Smtab Bakteri Resisten Logam Berat Pb Dari Limbah Cair Agar. *Agromix*. 10(1): 1-9.
- Rizko, N., Kusumaningrum, H. P., Ferniah, R. S., Pujiyanto, S., Erfianti, T., Mawarni, S. N., ... & Khairunnisa, D. (2020). Isolasi DNA daun jeruk bali merah (*Citrus maxima* Merr.) dengan modifikasi metode Doyle and Doyle. *Berkala Bioteknologi*, 3(2).
- Rodriguez-Navarro, C., Jroundi, F., Schiro, M., Ruiz-Agudo, E., & Gonzalez-Munoz, M. T. (2012). Influence of substrate mineralogy on bacterial mineralization of calcium carbonate: Implications for stone conservation. *Applied and Environment Microbiology*, 78(11), 4017–4029.
- Rong H, Qian C-X, Li L-Z. 2012. Influence of molding process on mechanical properties of sandstone cemented by microbe cement. *Constr. Build. Mater*. 28(1):238–43.

- Rosidiani, E. P., Arumingtyas, E. L., & Azrianingsih, R. (2013). Analisis Variasi Genetik *Amorphophallus muelleri* Blume dari Berbagai Populasi di Jawa Timur Berdasarkan Sekuen Intron trnL. *Floribunda*, 4(6), 129–137.
- Rossman AY, Allen WC, Castlebury LA. (2017). Proposals to conserve *Botryodiplodia theobromae* (*Lasiodiplodia theobromae*) against *Sphaeria glandicola*, *Diplodia gossypina*, and *Physalosporarhodina* (*Botryosphaeria rhodina*); *Phyllosticta yuccae* against *Leptodothiorella notabilis*; and *Ramularia brunnea* against *Sphaerella tussilaginis* (*Mycosphaerella tussilaginis*) (Ascomycota: Dothideomycetes). *Taxon*. 66(3):747–748. DOI: <https://doi.org/10.12705/663.17>.
- Ruan, S., Qiu, J., Weng, Y., Yang, Y., Yang, E. H., Chu, J., et al. (2019). The use of microbial induced carbonate precipitation in healing cracks within reactive magnesia cement-based blends. *Cem. Concr. Res.* 115, 176–188. doi: 10.1016/j.cemconres.2018.10.018
- Safrida, Y. D., Hardiana, H., & Mauliyana, M. (2021). Uji total plate count (TPC) bakteri pada minuman teh poci homemade di gampong batoh banda aceh. *Jurnal Serambi Engineering*, 6(2).
- Sambrook, J., Fritsch, E. F., & Maniatis, T. (1989). *Molecular cloning: a laboratory manual* (No. Ed. 2). Cold spring harbor laboratory press.)
- Samson, R.A., E.S. Hoekstra, J.C. Frisvad, and O. Filtenborg. (1995). *Introduction to food borne fungi*. 4th ed. Ponsen & Looyen, Baarn.
- Salvatore MM, Andolfi A, Nicoletti R. (2020). The thin line between pathogenicity and endophytism. The case of *Lasiodiplodia theobromae*. *Agriculture*. 10(10):1–22. DOI <https://doi.org/10.3390/agriculture10100488>.
- Sandy, A. Y., Syamsuddin, D., & Antok, W. S. (2015). Identifikasi Molekuler Fungi Antagonis *Trichoderma harzianum* diisolasi dari Tanah Pertanian di Malang, Jawa Timur. *Jurnal HPT*, 3(3), pp. 1-8.
- Sanger, F., Nicklen, S., & Coulson, A. R. (1977). DNA sequencing with chain-terminating inhibitors. *Proceedings of the national academy of sciences*. 74(12): 5463-5467.
- Saputra, R. D., & Hepiyanto, R. (2017). Pengaruh air pdam, laut, comberan pada proses curing terhadap kuat tekan beton Fc 14,53 Mpa. *Jurnal CIVILA*, 2(2), 6. <https://doi.org/10.30736/cvl.v2i2.78>

- Saputra, C. A. (2023). Analisis Campuran Limbah Botol Kaca Sebagai Bahan Tambah Agregat Halus Kuat Tekan Beton Mutu K-225. *Statika: Jurnal Teknik Sipil*, 9(1), 9-13.
- Sayer, J. A., Kierans, M., and Gadd, G. M. (1997). Solubilisation of some naturally occurring metal-bearing minerals, limescale and lead phosphate by *Aspergillus niger*. *FEMS Microbiol. Lett.* 154, 29–35. doi: 10.1111/j.1574-6968.1997.tb12620.x
- Schoch, C.L. *et al.* (2012) 'Nuclear ribosomal internal transcribed spacer (ITS) region as a universal DNA barcode marker for Fungi', *Proceedings of the National Academy of Sciences of the United States of America*, 109(16), pp. 6241–6246. doi:10.1073/pnas.1117018109.
- Seifan M, Samani A, Berenjian A. (2016). Bioconcrete: next generation of self-healing concrete. *Appl Microbiol Biotechnol* 100: 2591-2602.
- Setyawati, R., & Zubaidah, S. (2021). Optimasi konsentrasi primer dan suhu annealing dalam mendeteksi gen leptin pada sapi peranakan ongole (PO) menggunakan *polymerase chain reaction* (PCR). *Indonesian Journal of Laboratory*, 4(1), 36-40.
- Shingha, B. B., Suzuki, A., Pham, H. N. D., & Inatomi, S. (2012). Adaptation of ammonia fungi to urea enrichment environment. *J Agric Technol*, 8, 173-189.
- Shofa, A. F., Hariyanti, H., & Wahyudi, P. (2019). Penggunaan DNA Mitokondria Sebagai Penanda Sumber Gelatin Sediaan Gummy Dengan Teknik *Polymerase Chain Reaction* dan Sekuensing DNA. *JSFK (Jurnal Sains Farmasi & Klinis)*, 6(1), 25-31.
- Sibero, M. T., Sabdaningsih, A., Cristianawati, O., Nuryadi, H., Radjasa, O. K., Sabdono, A., & Trianto, A. (2017). Isolation, identification, and screening antibacterial activity from marine sponge associated-fungi against multidrug-resistant (MDR) *Escherichia coli*. *IOP Conf. Series: Earth and Environmental Science*, 55:012028.
- Sidiq A, Gravina R, Giustozzi F. (2019). Is concrete healing really efficient? A review. *Construction Building Mater* 205: 257-273.
- Silva F, Boon N, De Belie N, Verstraete W. (2015). Industrial application of biological self-healing concrete: challenges and economical feasibility. *J Commercial Biotechnol* 21 (1): 31-38. doi: 10.5912/jcb662

- Silvia, L., Zainuri, M., Suasmoro, S., Subagyo, B. A., Sukamto, H., Mashuri, M., & Purwaningsih, S. Y. (2018). Analisis Kandungan Mineral Pasir Pantai di Kabupaten Pacitan dengan Metode Ekstraksi. In *Prosiding Seminar Nasional & Internasional*, 1, 1.
- Sophian, A., & Yustina, Y. (2023). Analisis nilai kemurnian DNA menggunakan Nano fotometer pada rasio 260/230 yang diisolasi dari produk nugget. *Muhammadiyah Journal of Nutrition and Food Science (MJNF)*, 3(2), 82-86.
- Sukmawati., Ratna. & Fahrizal, A. (2018). Analisis Cemarkan Mikroba pada Daging Ayam Broiler di Kota Makassar. *Jurnal Scripta Biologica* 5(1): 68-71.
- Sunde, M., Kwan, A. H., Templeton, M. D., Beever, R. E., & Mackay, J. P. (2008). Structural analysis of hydrophobins. *Micron*, 39(7), 773-784.
- Sutari, N. W. S. (2020). Isolasi dan Identifikasi Morfologi Jamur Selulolitik dari Limbah Rumah Tangga di Desa Sanur Kauh, Bali. *Agrovigor: Jurnal Agroekoteknologi*, 13(2), 100-105.
- Suwardji, K. V., Prayuni, K., Andayani, S. H., Zulhamidah, Y., Sofwan, A., Muflihah, L., ... & Judasah, I. (2023). Detection of ADAM33 Gene Variants Using Sanger Sequencing. *Majalah Sainstekes*, 10(2), 117-125.
- Svetlana T. Zivkovic., et al. (2007). Characteristics of *Phomopsis* Sp. Isolates of Plum Trees Origin. Serbia: Institute for Plant Protection and Environment, Teodora Drajzera.
- Tamura K., Stecher G., and Kumar S. (2021). MEGA 11: Molecular Evolutionary Genetics Analysis Version 11. Molecular Biology and Evolution <https://doi.org/10.1093/molbev/msab120>
- Tangthirasunun, N., & Poeaim, S. (2022). Studies on the Rapid and simple DNA extraction Method, Antibacterial Activity and enzyme Activity involved in Plant Biomass Conversion by *Cookeina sulcipes* and *C. tricholoma* (Cup Fungi). *Journal of Pure & Applied Microbiology*, 16(4)
- Tekpinar, A. D., & Kalmer, A. (2019). Utility of various molecular markers in fungal identification and phylogeny. *Nova Hedwigia*, 109(1-2), 187-224.
- Triani, N. (2020). Isolasi DNA tanaman jeruk dengan menggunakan metode CTAB (cetyl trimethyl ammonium bromide). *G-Tech: Jurnal Teknologi Terapan*, 3(2), 221-226.

- Trianom, B., Arwiyanto, T., & Joko, T. (2018). Perancangan primer spesifik subspecies berbasis gen endoglukanase untuk deteksi *Ralstonia syzygii* subsp. *syzygii*. *Jurnal Perlindungan Tanaman Indonesia*, 22(2), 124-131.
- Tuason M.M.S. and Arocena J.M. (2009). Calcium oxalate biomineralization by *Piloderma fallax* in response to various levels of calcium and phosphours *Appl. Environ. Microbiol.* 75: 7079-7085
- Valenzuela-Lopez, N., Cano-Lira, J. F., Guarro, J., Sutton, D. A., Wiederhold, N., Crous, P. W., & Stchigel, A. M. (2018). Coelomycetous Dothideomycetes with emphasis on the families Cucurbitariaceae and Didymellaceae. *Studies in mycology*, 90(1), 1-69.
- van Agtmaal M, Straathof A, Termorshuizen A, Teurlincx S, Hundscheid M, Ruyters S, Busschaert P, Lievens B, de Boer W. (2017) Exploring the reservoir of potential fungal plant pathogens in agricultural soil. *Applied Soil Ecology* 121: 152–160. 10.1016/j.apsoil.2017.09.032.
- Wang, J., K. Van Tittelboom, N. De Belie, W. Verstraete. (2012). Use of silica gel or polyurethane immobilized bacteria for self-healing concrete, *Constr. Build. Mater*, 26, 532–540.
- Wangiyana, I. G. A. S. (2019). Comparation of Dendrogram and Cladogram Topology of *Gyrinops versteegii* and Others Gyrinops Member for Polyphasic Taxonomy. *Jurnal Silva Samalas*, 2(1), 13-18.
- Wati, R., Noverita, N., & Setia, T. M. (2019). Keanekaragaman jamur makroskopis di beberapa habitat Kawasan Taman Nasional Baluran. *Jurnal Biologi*, 12(2), 171-180.
- White TJ, Bruns T, Lee S, Taylor J. (1990). Amplification and direct sequencing of fungal ribosomal RNA genes for phylogenetics. In: PCR Protocols: a guide to methods and applications. (Innis MA, Gelfand DH, Sninsky JJ, White TJ, eds). New York, USA: Academic Press, 315–322.
- Wibowo, G. T. (2018). Produksi Enzim Selulase dari Fungi *Trichoderma harzianum* dengan Memanfaatkan Rumput Gajah (*Pennisetum purpureum*) Sebagai Substrat (Kajian Konsentrasi Inokulum dan Waktu Inkubasi). *Doctoral dissertation*. Universitas Brawijaya.
- Wirajana, I N., Yuliana, D. A., dan Ratnayani, K. (2013). Isolasi DNA metagenomik dari tanah hutan mangrove Pantai Suwung Bali. *Jurnal Kimia*. 7(1):19-24.

- Xu, Jianping. 2017. Fungal DNA barcoding. *The 6th International Barcode of Life Conference*. 01(01): 913-932. <https://doi.org/10.1139/gen-2016-0046@gen-iblf.issue01>
- Ye, P., Xiao, F., & Wei, S. (2023). Biomineralization and characterization of calcite and vaterite induced by the fungus *Cladosporium* sp. YPLJS-14. *Minerals*, 13(10), 1344.
- Zhang, X., Fan, X., Li, M., Samia, A., & Yu, X. B. (2021). Study on the behaviors of fungi-concrete surface interactions and theoretical assessment of its potentials for durable concrete with fungal-mediated self-healing. *Journal of Cleaner Production*, 292, 125870.
- Zakaria, L., Muhamad, I. M. J. and Intan, S. M. A. (2016). Molecular Characterisation of Endophytic Fungi from Roots of Wild Banana (*Musa acuminata*). *Tropical Life Sciences Research*, 27(1), 153–162.
- Zhang, J., Zhou, A., Liu, X., Zhao, B., Luan, Y., Wang, S., et al. (2017). Microbial network of the carbonate precipitation process induced by microbial consortia and the potential application to crack healing in concrete. *Sci. Rep.* 7:14600. doi: 10.1038/s41598-017-15177-z
- Zhang, X., Fan, X., Li, M., Samia, A., Yu, X.B., 2021. Study on the behaviors of fungi-concrete surface interactions and theoretical assessment of its potentials for durable concrete with fungal-mediated self-healing. *J. Clean. Prod.* 125870.
- Zhao, J., Csetenyi, L., & Gadd, G. M. (2022a). Fungal-induced CaCO₃ and SrCO₃ precipitation: a potential strategy for bioprotection of concrete. *Science of The Total Environment*, 816, 151501.
- Zhao, J., Dyer, T., Csetenyi, L., Jones, R., & Gadd, G. M. (2022b). Fungal colonization and biomineralization for bioprotection of concrete. *Journal of Cleaner Production*, 330, 129793.
- Zhang, D., Wu, H., Li, V. C., & Ellis, B. R. (2020). Autogenous healing of Engineered Cementitious Composites (ECC) based on MgO-fly ash binary system activated by carbonation curing. *Construction and Building Materials*, 238, 117672.
- Zulkarnain, M. I., Kusumaningrum, H. P., Nurhayati, N., Supriyadi, A., & Zainuri, M. (2023). Identifikasi Molekuler *Chlorella sorokiniana* menggunakan Marka ITS dan 18S rDNA serta Produksi Karotenoid dengan Perlakuan Cahaya. *Buletin Oseanografi Marina*, 12(2), 153-163.