

## REFERENCES

- Álvarez-Barragán, J., Domínguez-Malfavón, L., Vargas-Suárez, M., González-Hernández, R., Aguilar-Osorio, G., & Loza-Tavera, H. (2016). Biodegradative activities of selected environmental fungi on a polyester polyurethane varnish and polyether polyurethane foams. *Applied and environmental microbiology*, 82(17), 5225-5235.
- Anani, O. A., & Adetunji, C. O. (2021). Bioremediation of polythene and plastics using beneficial microorganisms. In *Microbial rejuvenation of polluted environment* (pp. 281-302). Springer, Singapore.
- Asmita, K., Shubhamsingh, T., & Tejashree, S. (2015). Isolation of plastic degrading micro-organisms from soil samples collected at various locations in Mumbai, India. *International Research Journal of Environment Sciences*, 4(3), 77-85.
- Bala, N., Sen, S., Pal, A., Ash, D., & Chakraborty, S. (2022). Non Bio-degradable Plastic Eating Bacteria: A Review. *International Journal of Environment and Climate Change*, 12(12), 88-95.
- Bardají, D. K. R., Furlan, J. P. R., & Stehling, E. G. (2019). Isolation of a polyethylene degrading Paenibacillus sp. from a landfill in Brazil. *Archives of microbiology*, 201, 699-704.
- Barratt, S. R., Ennos, A. R., Greenhalgh, M., Robson, G. D., & Handley, P. S. (2003). Fungi are the predominant micro-organisms responsible for degradation of soil-buried polyester polyurethane over a range of soil water holding capacities. *Journal of applied microbiology*, 95(1), 78-85.
- Barth, M., Honak, A., Oeser, T., Wei, R., Belisário-Ferrari, M. R., Then, J., ... & Zimmermann, W. (2016). A dual enzyme system composed of a polyester hydrolase and a carboxylesterase enhances the biocatalytic degradation of polyethylene terephthalate films. *Biotechnology Journal*, 11(8), 1082-1087.
- Basak, N., & Meena, S. S. (2022). Microbial biodegradation of plastics: Challenges, opportunities, and a critical perspective. *Frontiers of Environmental Science & Engineering*, 16(12), 1-22.

- Belgini, D. R. B., Dias, R. S., Siqueira, V. M., Albanese, J. M., Souza, R. S., Torres, A. P. R., ... & Oliveira, V. M. (2014). Culturable bacterial diversity from a feed water of a reverse osmosis system, evaluation of biofilm formation and biocontrol using phages. *World Journal of Microbiology and Biotechnology*, 30(10), 2689-2700.
- Ben Zair, M. M., Jakarni, F. M., Muniandy, R., & Hassim, S. (2021). A brief review: application of recycled polyethylene terephthalate in asphalt pavement reinforcement. *Sustainability*, 13(3), 1303.
- Billig, S., Oeser, T., Birkemeyer, C., & Zimmermann, W. (2010). Hydrolysis of cyclic poly (ethylene terephthalate) trimers by a carboxylesterase from *Thermobifida fusca* KW3. *Applied microbiology and biotechnology*, 87, 1753-1764.
- Boubendir, A. (1992). *Purification and biochemical evaluation of polyurethane degrading enzymes of fungal origin* (Doctoral dissertation, University of Salford).
- Caddeo, S., Baino, F., Ferreira, A. M., Sartori, S., Novajra, G., Ciardelli, G., & Vitale-Brovarone, C. (2015). Collagen/polyurethane-coated bioactive glass: early achievements towards the modelling of healthy and osteoporotic bone. In *Key Engineering Materials* (Vol. 631, pp. 184-189). Trans Tech Publications Ltd.
- Case, R. J., Boucher, Y., Dahlöf, I., Holmström, C., Doolittle, W. F., & Kjelleberg, S. (2007). Use of 16S rRNA and rpoB genes as molecular markers for microbial ecology studies. *Applied and environmental microbiology*, 73(1), 278-288.
- Chertkov, O., Sikorski, J., Nolan, M., Lapidus, A., Lucas, S., Glavina Del Rio, T., ... & Kyrpides, N. C. (2011). Complete genome sequence of *Thermomonospora curvata* type strain (B9 T). *Standards in genomic sciences*, 4, 13-22.
- Coelho, I., Pires, R. F., Gonçalves, S. B., Bonifácio, V. D., & Faria, M. (2022). Gas Permeability and Mechanical Properties of Polyurethane-Based Membranes for Blood Oxygenators. *Membranes*, 12(9), 826.

- Corti, A., Muniyasamy, S., Vitali, M., Imam, S. H., & Chiellini, E. (2010). Oxidation and biodegradation of polyethylene films containing pro-oxidant additives: Synergistic effects of sunlight exposure, thermal aging and fungal biodegradation. *Polymer Degradation and Stability*, 95(6), 1106-1114.
- Cosgrove, L., McGeechan, P. L., Robson, G. D., & Handley, P. S. (2007). Fungal communities associated with degradation of polyester polyurethane in soil. *Applied and environmental microbiology*, 73(18), 5817-5824.
- Cregut, M., Bedas, M., Durand, M. J., & Thouand, G. (2013). New insights into polyurethane biodegradation and realistic prospects for the development of a sustainable waste recycling process. *Biotechnology advances*, 31(8), 1634-1647.
- Cui, S., Borgemenke, J., Qin, Y., Liu, Z., & Li, Y. (2019). Bio-based polycarbonates from renewable feedstocks and carbon dioxide. In *Advances in bioenergy* (Vol. 4, pp. 183-208). Elsevier.
- Cheng, Y., Chen, J., Bao, M., & Li, Y. (2022). Surface modification ability of Paracoccus sp. indicating its potential for polyethylene terephthalate degradation. *International Biodeterioration & Biodegradation*, 173, 105454.
- Dacewicz, E., & Lenart-Boroń, A. (2023). Waste Polyurethane Foams as Biomass Carriers in the Treatment Process of Domestic Sewage with Increased Ammonium Nitrogen Content. *Materials*, 16(2), 619.
- Danso, D., Schmeisser, C., Chow, J., Zimmermann, W., Wei, R., Leggewie, C., ... & Streit, W. R. (2018). New insights into the function and global distribution of polyethylene terephthalate (PET)-degrading bacteria and enzymes in marine and terrestrial metagenomes. *Applied and environmental microbiology*, 84(8), e02773-17.
- Danso, D., Chow, J., & Streit, W. R. (2019). Plastics: environmental and biotechnological perspectives on microbial degradation. *Applied and environmental microbiology*, 85(19), e01095-19.
- Darby, R. T., & Kaplan, A. M. (1968). Fungal susceptibility of polyurethanes. *Applied microbiology*, 16(6), 900-905.

- Dhaka, V., Singh, S., Ramamurthy, P. C., Samuel, J., Swamy Sunil Kumar Naik, T., Khasnabis, S., ... & Singh, J. (2022). Biological degradation of polyethylene terephthalate by rhizobacteria. *Environmental Science and Pollution Research*, 1-10.
- Divyalakshmi, S., & Subhashini, A. (2016). Screening and isolation of polyethylene degrading bacteria from various soil environments. *IOSR J Environ Sci Toxicol Food Technol*, 10(12), 01-07.
- Dong, Q., Yuan, S., Wu, L., Su, L., Zhao, Q., Wu, J., ... & Zhou, J. (2020). Structure-guided engineering of a *Thermobifida fusca* cutinase for enhanced hydrolysis on natural polyester substrate. *Bioresources and Bioprocessing*, 7, 1-9.
- Eberl, A., Heumann, S., Brückner, T., Araujo, R., Cavaco-Paulo, A., Kaufmann, F., ... & Guebitz, G. M. (2009). Enzymatic surface hydrolysis of poly (ethylene terephthalate) and bis (benzoyloxyethyl) terephthalate by lipase and cutinase in the presence of surface active molecules. *Journal of biotechnology*, 143(3), 207-212.
- Edwards, S., León-Zayas, R., Ditter, R., Laster, H., Sheehan, G., Anderson, O., ... & Mellies, J. L. (2022). Microbial Consortia and Mixed Plastic Waste: Pangenomic Analysis Reveals Potential for Degradation of Multiple Plastic Types via Previously Identified PET Degrading Bacteria. *International journal of molecular sciences*, 23(10), 5612.
- Elahi, A., Bukhari, D. A., Shamim, S., & Rehman, A. (2021). Plastics degradation by microbes: A sustainable approach. *Journal of King Saud University-Science*, 33(6), 101538.
- Esmaeili, A., Pourbabae, A. A., Alikhani, H. A., Shabani, F., & Esmaeili, E. (2013). Biodegradation of low-density polyethylene (LDPE) by mixed culture of *Lysinibacillus xylanilyticus* and *Aspergillus niger* in soil. *Plos one*, 8(9), e71720.
- Fotopoulos, K. N., & Karapanagioti, H. K. (2019). Degradation of various plastics in the environment. *Hazardous chemicals associated with plastics in the marine environment*, 71-92.
- Gajendiran, A., Krishnamoorthy, S., & Abraham, J. (2016). Microbial degradation of low-density polyethylene (LDPE) by *Aspergillus clavatus* strain JASK1 isolated from landfill soil. *3 Biotech*, 6, 1-6.

- Gautam, R., Bassi, A. S., Yanful, E. K., & Cullen, E. (2007). Biodegradation of automotive waste polyester polyurethane foam using *Pseudomonas chlororaphis* ATCC55729. *International Biodegradation & Biodegradation*, 60(4), 245-249.
- Getachew, A., & Woldesenbet, F. (2016). Production of biodegradable plastic by polyhydroxybutyrate (PHB) accumulating bacteria using low cost agricultural waste material. *BMC research notes*, 9, 1-9.
- Gultom, E. S., Nasution, M. Y., & Ayu, A. (2017). Seleksi Bakteri Pendegradasi Plastik dari Tanah. *Generasi Kampus*, 10(2).
- Gunawan, N. R., Tessman, M., Zhen, D., Johnson, L., Evans, P., Clements, S. M., ... & Mayfield, S. P. (2022). Biodegradation of renewable polyurethane foams in marine environments occurs through depolymerization by marine microorganisms. *Science of The Total Environment*, 850, 158761.
- Haernvall, K., Zitzenbacher, S., Wallig, K., Yamamoto, M., Schick, M. B., Ribitsch, D., & Guebitz, G. M. (2017). Hydrolysis of ionic phthalic acid based polyesters by wastewater microorganisms and their enzymes. *Environmental Science & Technology*, 51(8), 4596-4605.
- Hao, J., Wang, J., Zhao, W., Ding, L., Gao, E., & Yuan, W. (2011). Effect of bisphenol A exposure on sex hormone level in occupational women. *Wei Sheng yan jiu= Journal of Hygiene Research*, 40(3), 312-4.
- Harshvardhan, K., & Jha, B. (2013). Biodegradation of low-density polyethylene by marine bacteria from pelagic waters, Arabian Sea, India. *Marine Pollution Bulletin*, 77(1-2), 100-106.
- Harwani, D. (2013). The great plate count anomaly and the unculturable bacteria. *Microbiology*, 2(9), 350-1.
- Hegde, K., & Veeranki, V. D. (2013). Production optimization and characterization of recombinant cutinases from *Thermobifida fusca* sp. NRRL B-8184. *Applied biochemistry and biotechnology*, 170, 654-675.

- Howard, G. T., Vicknair, J., & Mackie, R. I. (2001). Sensitive plate assay for screening and detection of bacterial polyurethanase activity. *Letters in Applied Microbiology*, 32(3), 211-214.
- Howard, G. T., Mackie, R. I., Cann, I. K. O., Ohene-Adjei, S., Aboudehen, K. S., Duos, B. G., & Childers, G. W. (2007). Effect of insertional mutations in the pueA and pueB genes encoding two polyurethanases in *Pseudomonas chlororaphis* contained within a gene cluster. *Journal of applied microbiology*, 103(6), 2074-2083.
- Ibrahim, I. N., Maraqa, A., Hameed, K. M., Saadoun, I. M., & Maswadeh, H. M. (2011). Assessment of potential plastic-degrading fungi in Jordanian habitats. *Turkish Journal of Biology*, 35(5), 551-557.
- Ioakeimidis, C., Fotopoulou, K. N., Karapanagioti, H. K., Geraga, M., Zeri, C., Papathanassiou, E., ... & Papatheodorou, G. (2016). The degradation potential of PET bottles in the marine environment: An ATR-FTIR based approach. *Scientific reports*, 6(1), 23501.
- Iparraguirre Quispe, KDR, & Vivanco López, M. (2015). Isolation and characterization of filamentous fungi that biodegrade polyethylene terephthalate and low density polyethylene-lca.
- Jaiswal, S., Sharma, B., & Shukla, P. (2020). Integrated approaches in microbial degradation of plastics. *Environmental Technology & Innovation*, 17, 100567.
- Jung, M. R., Horgen, F. D., Orski, S. V., Rodriguez, V., Beers, K. L., Balazs, G. H., ... & Lynch, J. M. (2018). Validation of ATR FT-IR to identify polymers of plastic marine debris, including those ingested by marine organisms. *Marine pollution bulletin*, 127, 704-716.
- Kamboj, M. (2016). Degradation of plastics for clean environment. *International Journal of Advanced Research in Engineering and Applied Sciences*, 5(3), 10-19.
- Kaushal, J., Khatri, M., & Arya, S. K. (2021). Recent insight into enzymatic degradation of plastics prevalent in the environment: A mini-review. *Cleaner Engineering and Technology*, 2, 100083.
- Kawai, F. (2021). The current state of research on PET hydrolyzing enzymes available for biorecycling. *Catalysts*, 11(2), 206.

- Kemona, A., & Piotrowska, M. (2020). Polyurethane recycling and disposal: Methods and prospects. *Polymers*, 12(8), 1752.
- Khan, S., Nadir, S., Shah, Z. U., Shah, A. A., Karunaratna, S. C., Xu, J., ... & Hasan, F. (2017). Biodegradation of polyester polyurethane by *Aspergillus tubingensis*. *Environmental pollution*, 225, 469-480.
- Kim, J. W., Park, S. B., Tran, Q. G., Cho, D. H., Choi, D. Y., Lee, Y. J., & Kim, H. S. (2020). Functional expression of polyethylene terephthalate-degrading enzyme (PETase) in green microalgae. *Microbial Cell Factories*, 19(1), 1-9.
- Kotova, I. B., Taktarova, Y. V., Tsavkelova, E. A., Egorova, M. A., Bubnov, I. A., Malakhova, D. V., ... & Bonch-Osmolovskaya, E. A. (2021). Microbial degradation of plastics and approaches to make it more efficient. *Microbiology*, 90, 671-701.
- Krasowska, K., Janik, H., Gradys, A., & Rutkowska, M. (2012). Degradation of polyurethanes in compost under natural conditions. *Journal of applied polymer science*, 125(6), 4252-4260.
- Liebminger, S., Eberl, A., Sousa, F., Heumann, S., Fischer-Colbrie, G., Cavaco-Paulo, A., & Guebitz, G. M. (2007). Hydrolysis of PET and bis-(benzoyloxyethyl) terephthalate with a new polyesterase from *Penicillium citrinum*. *Biocatalysis and Biotransformation*, 25(2-4), 171-177.
- Lindahl, B. D., Nilsson, R. H., Tedersoo, L., Abarenkov, K., Carlsen, T., Kjøller, R., ... & Kauserud, H. (2013). Fungal community analysis by high-throughput sequencing of amplified markers—a user's guide. *New phytologist*, 199(1), 288-299.
- Liu, Y., Xu, Y., He, X., Wang, D., Hu, S., Li, S., & Jiang, W. (2017). Reduction of salt content of fish sauce by ethanol treatment. *Journal of food science and technology*, 54, 2956-2964.
- Loredo-Treviño, A., Gutiérrez-Sánchez, G., Rodríguez-Herrera, R., & Aguilar, C. N. (2012). Microbial enzymes involved in polyurethane biodegradation: a review. *Journal of Polymers and the Environment*, 20, 258-265.

- Magnin, A., Hoornaert, L., Pollet, E., Laurichesse, S., Phalip, V., & Avérous, L. (2019). Isolation and characterization of different promising fungi for biological waste management of polyurethanes. *Microbial Biotechnology*, 12(3), 544-555.
- Mahajan, N., & Gupta, P. (2015). New insights into the microbial degradation of polyurethanes. *RSC Advances*, 5(52), 41839-41854.
- Mathur, G., & Prasad, R. (2012). Degradation of polyurethane by *Aspergillus flavus* (ITCC 6051) isolated from soil. *Applied biochemistry and biotechnology*, 167, 1595-1602.
- Matsumiya, Y., Murata, N., Tanabe, E., Kubota, K., & Kubo, M. (2010). Isolation and characterization of an ether-type polyurethane-degrading micro-organism and analysis of degradation mechanism by *Alternaria* sp. *Journal of applied microbiology*, 108(6), 1946-1953.
- Mishra, Y., Sharma, L., Dhiman, M., & Sharma, M. M. (2021). Endophytic fungal diversity of selected medicinal plants and their bio-potential applications. In *Fungi Bio-Prospects in Sustainable Agriculture, Environment and Nano-Technology* (pp. 227-283). Academic Press.
- Mohanan, N., Montazer, Z., Sharma, P. K., & Levin, D. B. (2020). Microbial and enzymatic degradation of synthetic plastics. *Frontiers in Microbiology*, 11, 580709.
- Montazer, Z., Habibi-Najafi, M. B., Mohebbi, M., & Oromiehei, A. (2018). Microbial degradation of UV-pretreated low-density polyethylene films by novel polyethylene-degrading bacteria isolated from plastic-dump soil. *Journal of Polymers and the Environment*, 26, 3613-3625.
- Mukherjee, K., Tribedi, P., Chowdhury, A., Ray, T., Joardar, A., Giri, S., & Sil, A. K. (2011). Isolation of a *Pseudomonas aeruginosa* strain from soil that can degrade polyurethane diol. *Biodegradation*, 22, 377-388.
- Nakkabi, A., Sadiki, M., Fahim, M., Ittobane, N., Ibnsouda Koraichi, S., Barkai, H., & El Abed, S. (2015). Biodegradation of Poly (ester urethane)s by *Bacillus subtilis*. *International Journal of Environmental Research*, 9(1), 157-162.
- Nandyanto, A. B. D., Oktiani, R., & Ragadhita, R. (2019). How to read and interpret FTIR spectroscope of organic material. *Indonesian Journal of Science and Technology*, 4(1), 97-118.

- Nikolaivits, E., Taxeidis, G., Gkountela, C., Vouyiouka, S., Maslak, V., Nikodinovic-Runic, J., & Topakas, E. (2022). A polyesterase from the Antarctic bacterium *Moraxella* sp. degrades highly crystalline synthetic polymers. *Journal of Hazardous Materials*, 434, 128900.
- Nimchua, T., Eveleigh, D. E., Sangwatanaroj, U., & Punnapayak, H. (2008). Screening of tropical fungi producing polyethylene terephthalate-hydrolyzing enzyme for fabric modification. *Journal of Industrial Microbiology and Biotechnology*, 35(8), 843.
- Oeser, T., Wei, R., Baumgarten, T., Billig, S., Föllner, C., & Zimmermann, W. (2010). High level expression of a hydrophobic poly (ethylene terephthalate)-hydrolyzing carboxylesterase from *Thermobifida fusca* KW3 in *Escherichia coli* BL21 (DE3). *Journal of biotechnology*, 146(3), 100-104.
- Oprea, S., Potolinca, V. O., Gradinariu, P., Joga, A., & Oprea, V. (2016). Synthesis, properties, and fungal degradation of castor-oil-based polyurethane composites with different cellulose contents. *Cellulose*, 23, 2515-2526.
- Pérez-Cobas, A. E., Gomez-Valero, L., & Buchrieser, C. (2020). Metagenomic approaches in microbial ecology: an update on whole-genome and marker gene sequencing analyses. *Microbial genomics*, 6(8).
- Pikoli, M. R., Rahmah, F. A., Sari, A. F., Astuti, P., & Solihat, N. A. (2021). *MEMANCING MIKROBA DARI SAMPAH: Isolasi Mikroorganisme Pendegradasi Mikroplastik: Isolasi Mikroorganisme Pendegradasi Mikroplastik dari Tempat Pembuangan (TPA) Sampah*. Buku Amal Jariyah & Kinzamedia.
- PlasticsEurope. (2016). Plastics—the facts 2016: an analysis of European plastics production, Demand and Waste Data (PlasticsEurope)
- Rajandas, H., Parimannan, S., Sathasivam, K., Ravichandran, M., & Yin, L. S. (2012). A novel FTIR-ATR spectroscopy based technique for the estimation of low-density polyethylene biodegradation. *Polymer Testing*, 31(8), 1094-1099.

- Ribitsch, D., Heumann, S., Trotscha, E., Herrero Acero, E., Greimel, K., Leber, R., ... & Guebitz, G. M. (2011). Hydrolysis of polyethyleneterephthalate by p-nitrobenzylesterase from *Bacillus subtilis*. *Biotechnology progress*, 27(4), 951-960.
- Roager, L., & Sonnenschein, E. C. (2019). Bacterial candidates for colonization and degradation of marine plastic debris. *Environmental science & technology*, 53(20), 11636-11643.
- Roberts, C., Edwards, S., Vague, M., León-Zayas, R., Scheffer, H., Chan, G., ... & Mellies, J. L. (2020). Environmental consortium containing pseudomonas and bacillus species synergistically degrades polyethylene terephthalate plastic. *Mosphere*, 5(6), e01151-20.
- Rodrigues, C. J., & de Carvalho, C. C. (2022). Cultivating marine bacteria under laboratory conditions: Overcoming the “unculturable” dogma. *Frontiers in Bioengineering and Biotechnology*, 1476.
- Rohmah, U. M., Shovitri, M., & Kuswytasari, K. (2019). Degradasi Plastik Oleh Jamur Aspergillus terreus (LM 1021) Pada pH 5 dan pH 6; Serta Suhu 25 dan 35 Celcius. *Jurnal Sains dan Seni ITS*, 7(2), 60-65.
- Sarkhel, R., Sengupta, S., Das, P., & Bhowal, A. (2020). Comparative biodegradation study of polymer from plastic bottle waste using novel isolated bacteria and fungi from marine source. *Journal of Polymer Research*, 27, 1-8.
- Schoch, C. L., Seifert, K. A., Huhndorf, S., Robert, V., Spouge, J. L., Levesque, C. A., ... & White, M. M. (2012). Nuclear ribosomal internal transcribed spacer (ITS) region as a universal DNA barcode marker for Fungi. *Proceedings of the national academy of Sciences*, 109(16), 6241-6246.
- Seymour, R. B., & Kauffman, G. B. (1992). Polyurethanes: a class of modern versatile materials. *Journal of Chemical Education*, 69(11), 909.
- Shah, A. A., Hasan, F., Hameed, A., & Ahmed, S. (2008). Biological degradation of plastics: a comprehensive review. *Biotechnology advances*, 26(3), 246-265.
- Shah, Z., Gulzar, M., Hasan, F., & Shah, A. A. (2016). Degradation of polyester polyurethane by an indigenously developed consortium of Pseudomonas and Bacillus species isolated from soil. *Polymer Degradation and Stability*, 134, 349-356.

- Shah, Z., Hasan, F., Krumholz, L., Aktas, D. F., & Shah, A. A. (2013). Degradation of polyester polyurethane by newly isolated *Pseudomonas aeruginosa* strain MZA-85 and analysis of degradation products by GC-MS. *International Biodeterioration & Biodegradation*, 77, 114-122.
- Shah, Z., Krumholz, L., Aktas, D. F., Hasan, F., Khattak, M., & Shah, A. A. (2013). Degradation of polyester polyurethane by a newly isolated soil bacterium, *Bacillus subtilis* strain MZA-75. *Biodegradation*, 24, 865-877.
- Shahnawaz, M., Sangale, M. K., & Ade, A. B. (2016). Bacteria-based polythene degradation products: GC-MS analysis and toxicity testing. *Environmental Science and Pollution Research*, 23, 10733-10741.
- Sharma, S., Deshar, R., Rianse, U., Kusmaryono, Y., & Zamrun, F. (Eds.). (2015). *Proceeding Celebes International Conference on Diversity of Wallacea's Line (CICDWL 2015): Sustainable Management of Geological, Biological, and Cultural Diversities of Wallacea's Line toward A Millennium Era--Kendari, May 8–10, 2015*. Unhalu Press.
- Singh, R. P., Tomer, N. S., & Bhadraiah, S. V. (2001). Photo-oxidation studies on polyurethane coating: effect of additives on yellowing of polyurethane. *Polymer degradation and stability*, 73(3), 443-446.
- Smakman, F., & Hall, A. R. (2022). Exposure to lysed bacteria can promote or inhibit growth of neighboring live bacteria depending on local abiotic conditions. *FEMS Microbiology Ecology*, 98(2), fiac011.
- Sobczyński, J., & Chudzik-Rząd, B. (2017). Organic Nanocarriers for the Delivery of Antiinfective Agents. In *Nanostructures for Antimicrobial Therapy* (pp. 369-393). Elsevier.
- Suryawanshi, Y., Sanap, P., & Wani, V. (2019). Advances in the synthesis of non-isocyanate polyurethanes. *Polymer Bulletin*, 76, 3233-3246.
- Taghavi, N., Singhal, N., Zhuang, W. Q., & Baroutian, S. (2021). Degradation of plastic waste using stimulated and naturally occurring microbial strains. *Chemosphere*, 263, 127975.

- Tan, Y., Henehan, G. T., Kinsella, G. K., & Ryan, B. J. (2022). Extracellular secretion of a cutinase with polyester-degrading potential by *E. coli* using a novel signal peptide from *Amycolatopsis mediterranei*. *World Journal of Microbiology and Biotechnology*, 38(4), 1-12.
- Then, J., Wei, R., Oeser, T., Barth, M., Belisário-Ferrari, M. R., Schmidt, J., & Zimmermann, W. (2015). Ca<sup>2+</sup> and Mg<sup>2+</sup> binding site engineering increases the degradation of polyethylene terephthalate films by polyester hydrolases from *Thermobifida fusca*. *Biotechnology Journal*, 10(4), 592-598.
- Thompson, R. C., Moore, C. J., Vom Saal, F. S., & Swan, S. H. (2009). Plastics, the environment and human health: current consensus and future trends. *Philosophical transactions of the royal society B: biological sciences*, 364(1526), 2153-2166.
- Tuladhar, R., & Yin, S. (2019). Sustainability of using recycled plastic fiber in concrete. In *Use of recycled plastics in eco-efficient concrete* (pp. 441-460). Woodhead Publishing.
- Uthayasooriyan, M., Pathmanathan, S., Ravimannan, N., & Sathyaruban, S. (2016). Formulation of alternative culture media for bacterial and fungal growth.
- Vartoukian, S. R., Palmer, R. M., & Wade, W. G. (2010). Strategies for culture of 'unculturable' bacteria. *FEMS microbiology letters*, 309(1), 1-7.
- Wei, R., Oeser, T., Then, J., Kühn, N., Barth, M., Schmidt, J., & Zimmermann, W. (2014). Functional characterization and structural modeling of synthetic polyester-degrading hydrolases from *Thermomonospora curvata*. *AMB express*, 4, 1-10.
- Wei, R., & Zimmermann, W. (2017). Biocatalysis as a green route for recycling the recalcitrant plastic polyethylene terephthalate. *Microbial biotechnology*, 10(6), 1302.
- Wei, R., & Zimmermann, W. (2017). Microbial enzymes for the recycling of recalcitrant petroleum-based plastics: how far are we?. *Microbial biotechnology*, 10(6), 1308-1322.
- Wei, R., Tiso, T., Bertling, J., O'Connor, K., Blank, L. M., & Bornscheuer, U. T. (2020). Possibilities and limitations of biotechnological plastic degradation and recycling. *Nature Catalysis*, 3(11), 867-871.

- Yang, E., Fan, L., Yan, J., Jiang, Y., Doucette, C., Fillmore, S., & Walker, B. (2018). Influence of culture media, pH and temperature on growth and bacteriocin production of bacteriocinogenic lactic acid bacteria. *AMB express*, 8(1), 1-14.
- Yang, J., Yang, Y., Wu, W. M., Zhao, J., & Jiang, L. (2014). Evidence of polyethylene biodegradation by bacterial strains from the guts of plastic-eating waxworms. *Environmental science & technology*, 48(23), 13776-13784.
- Yoon, M. G., Jeon, H. J., & Kim, M. N. (2012). Biodegradation of polyethylene by a soil bacterium and AlkB cloned recombinant cell. *J Bioremed Biodegrad*, 3(4), 1-8.
- Yoshida, S., Hiraga, K., Takehana, T., Taniguchi, I., Yamaji, H., Maeda, Y., ... & Oda, K. (2016). A bacterium that degrades and assimilates poly (ethylene terephthalate). *Science*, 351(6278), 1196-1199.
- Yoshida, S., Hiraga, K., Taniguchi, I., & Oda, K. (2021). Ideonella sakaiensis, PETase, and MHETase: From identification of microbial PET degradation to enzyme characterization. In *Methods in Enzymology* (Vol. 648, pp. 187-205). Academic Press.
- Zafar, U., Nzeram, P., Langarica-Fuentes, A., Houlden, A., Heyworth, A., Saiani, A., & Robson, G. D. (2014). Biodegradation of polyester polyurethane during commercial composting and analysis of associated fungal communities. *Bioresource technology*, 158, 374-377.
- Zhang, K., Hu, J., Yang, S., Xu, W., Wang, Z., Zhuang, P., ... & Luo, Z. (2022). Biodegradation of polyester polyurethane by the marine fungus Cladosporium halotolerans 6UPA1. *Journal of Hazardous Materials*, 437, 129406.
- Zhang, Y., Pedersen, J. N., Eser, B. E., & Guo, Z. (2022). Biodegradation of polyethylene and polystyrene: From microbial deterioration to enzyme discovery. *Biotechnology Advances*, 107991.
- Zimmermann, W., & Billig, S. (2011). Enzymes for the biofunctionalization of poly (ethylene terephthalate). *Biofunctionalization of Polymers and their Applications*, 97-120.