

## Daftar Pustaka

- Amriya, Y. (2020). Analisis Potensi Pencemaran Nitrit (NO<sub>2</sub>) Pada Tambak Udang Di Sepanjang Pantai Selatan Yogyakarta [skripsi]. *Yogyakarta (ID) : Universitas Islam Indonesia*.
- Arsad, S., Afandy, A., & Purwadhi, A. P. (2016). *Study Of Vaname Shrimp Culture (Litopenaeus Vannamei) In Different Rearing Sistem*. 14.
- Badan Standardisasi Nasional. (2005). SNI 06-6989.31-2005: Air dan air limbah – Bagian 31: Cara uji kadar fosfat dengan spektrofotometer secara asam askorbat. Jakarta: Badan Standardisasi Nasional.
- Baird, R., & Bridgewater, L. (2017). *Standard methods for the examination of water and wastewater 23rd ed*. Washington, D.C.: American Public Health Association.
- Bock, E., & Wagner, M. (2006). Oxidation of inorganic nitrogen compounds as an energy source. In M. Dworkin et al. (Eds.), *The Prokaryotes: Vol. 2. Ecophysiology and Biochemistry* (pp. 457–495). Springer.
- Boyd, C. E., & Tucker, C. S. (2012). *Pond Aquaculture Water Quality Management*. Springer Science & Business Media.
- Budiardi, T., Muluk, C., Widigdo, B., & Praptokardiyo, K. (2008). *Tingkat Pemanfaatan Pakan Dan Kelayakan Kualitas Air Serta Estimasi Pertumbuhan Dan Produksi Udang Vaname (Litopenaeus vannamei, Boone 1931) Pada Sistem Intensif*. 8.
- Caffrey, J. M., et al. (2007). "Heterotrophic nitrification by bacteria isolated from marine environments." *FEMS Microbiology Letters*, 268(2), 243-249. <https://doi.org/10.1111/j.1574-6968.2007.00856.x>
- Camargo, J. A., & Alonso, Á. (2006). Ecological and toxicological effects of inorganic nitrogen pollution in aquatic ecosystems: A global assessment. *Environment International*, 32(6), 831–849. <https://doi.org/10.1016/j.envint.2006.05.002>
- Chakravorty, S., Helb, D., Burday, M., Connell, N., & Alland, D. (2007). A detailed analysis of 16S ribosomal RNA gene segments for the diagnosis of pathogenic bacteria. *Journal of Microbiological Methods*, 69(2), 330-339. <https://doi.org/10.1016/j.mimet.2007.02.005>
- Chen, L., Zhang, W., & Liu, Y. (2023). Metabolic pathways of *Paracoccus* species in heterotrophic nitrification–aerobic denitrification. *Microbial Ecology*, 75(2), 345–355. <https://doi.org/10.1016/j.micres.2023.103456>
- Chen, Y., Lin, Y., Zhu, J., Zhou, J., Lin, H., Fu, Y., & Zhou, Y. (2024). Transcriptomic analysis of nitrogen metabolism pathways in *Klebsiella aerogenes* under nitrogen-rich conditions. *Frontiers in Microbiology*, 15, 1323160. <https://doi.org/10.3389/fmicb.2024.1323160>

- Cheng, W., Liu, C.-H., & Chen, J.-C. (2002). Effect of ammonia on the immune response of white shrimp *Litopenaeus vannamei* and its susceptibility to *Vibrio alginolyticus*. *Fish & Shellfish Immunology*, 13(3), 193–206. <https://doi.org/10.1006/fsim.2001.0394>
- Chubukov, V., Gerosa, L., Kochanowski, K., & Sauer, U. (2014). Coordination of microbial metabolism. *Nature Reviews Microbiology*, 12(5), 327–340. <https://doi.org/10.1038/nrmicro3238>
- Cua, L. S., & Stein, L. Y. (2011). Effects of nitrite on ammonia-oxidizing activity and gene regulation in three ammonia-oxidizing bacteria: Effects of nitrite on ammonia-oxidizing bacteria. *FEMS Microbiology Letters*, 319(2), 169–175. <https://doi.org/10.1111/j.1574-6968.2011.02277.x>
- Cydzik-Kwiatkowska, A., & Zielinska, M. (2016). Bacterial communities in full-scale wastewater treatment systems analyzed by high-throughput sequencing: Flavobacteria as key proteolytic bacteria in activated sludge. *Bioresource Technology*, 222, 15–22. <https://doi.org/10.1016/j.biortech.2016.09.112>
- Delgado, M. J., & Gasset, E. (2010). Nitrogen removal from aquaculture effluents through nitrification-denitrification processes: Effect of pH and temperature. *Water Science and Technology*, 61(4), 923–931. <https://doi.org/10.2166/wst.2010.843>
- Donlan, R. M. (2002). Biofilms: Microbial life on surfaces. *Emerging Infectious Diseases*, 8(9), 881–890. <https://doi.org/10.3201/eid0809.020063>
- Ebeling, J. M., Timmons, M. B., & Bisogni, J. J. (2006). Engineering analysis of the stoichiometry of photoautotrophic, autotrophic, and heterotrophic removal of ammonia–nitrogen in aquaculture systems. *Aquaculture*, 257(1–4), 346–358. <https://doi.org/10.1016/j.aquaculture.2006.03.019>
- Effendi, H. (2003). *Telaah kualitas air bagi pengelolaan sumber daya dan lingkungan perairan*. Kanisius.
- Emerson, K., Russo, R. C., Lund, R. E., & Thurston, R. V. (1975). Aqueous ammonia equilibrium calculations: Effect of pH and temperature. *Journal of the Fisheries Research Board of Canada*, 32(12), 2379–2383. <https://doi.org/10.1139/f75-274>
- FAO. (2022). *Aquaculture production*. Fao.org. Retrieved 2 July 2022, from <https://www.fao.org/3/cc0461en/online/sofia/2022/aquaculture-production.html>.
- Flemming, H. C., & Wingender, J. (2010). The biofilm matrix. *Nature Reviews Microbiology*, 8(9), 623–633. <https://doi.org/10.1038/nrmicro2415>
- Garrido, J. M., et al. (2016). Effect of pH on nitrification performance in the treatment of wastewater. *Journal of Environmental Management*, 168, 209–214. <https://doi.org/10.1016/j.jenvman.2015.11.002>

- Ghosh, S., Sengupta, S., & Maiti, T.K. (2022). Bacterial 16S rRNA gene amplification and sequencing: Methods, workflow and bioinformatics analysis. *Current Protocols in Microbiology*, 64(1), e142.
- Green, M. R., & Sambrook, J. (2019). *Molecular Cloning: A Laboratory Manual* (4th ed.). Cold Spring Harbor Laboratory Press.
- Gupta, S. (2000). Quantitative estimation of *Thiosphaera pantotropha* from aerobic mixed culture. *Water Research*, 34(15), 3765–3768. [https://doi.org/10.1016/S0043-1354\(00\)00123-8](https://doi.org/10.1016/S0043-1354(00)00123-8)
- Hall-Stoodley, L., Costerton, J. W., & Stoodley, P. (2004). Bacterial biofilms: From the natural environment to infectious diseases. *Nature Reviews Microbiology*, 2(2), 95–108. <https://doi.org/10.1038/nrmicro821>
- Hargreaves, J. A. (1998). Nitrogen biogeochemistry of aquaculture ponds. *Aquaculture*, 166(3–4), 181–212. [https://doi.org/10.1016/S00448486\(98\)00298-1](https://doi.org/10.1016/S00448486(98)00298-1)
- Hoang, M. N., Nguyen, P. N., & Bossier, P. (2020). Water quality, animal performance, nutrient budgets and microbial community in the biofloc-based polyculture system of white shrimp, *Litopenaeus vannamei* and gray mullet, *Mugil cephalus*. *Aquaculture*, 515, 734610. <https://doi.org/10.1016/j.aquaculture.2019.734610>
- Huang, F., Pan, L., Lv, N., & Tang, X. (2017). Characterization of novel *Bacillus* strain N31 from mariculture water capable of halophilic heterotrophic nitrification–aerobic denitrification. *Journal of Bioscience and Bioengineering*, 124(5), 564–571. [doi.org/10.1016/j.jbiosc.2017.06.008](https://doi.org/10.1016/j.jbiosc.2017.06.008)
- Huslina, F., & Harahap, D. (2019). ISOLASI BAKTERI PENGIKAT NITROGEN DENGAN MENGGUNAKAN MEDIA JENSEN. *Jurnal Agrotek Ummat*, 6(2), 91. <https://doi.org/10.31764/agrotek.v6i2.1238>
- Jayasinghe, J., Gamage, D., & Jayasinghe, J. (2019). Combating Climate Change Impacts for Shrimp Aquaculture Through Adaptations: Sri Lankan Perspective. *Sustainable Solutions For Food Security*, 287–309. [https://doi.org/10.1007/978-3-319-77878-5\\_15](https://doi.org/10.1007/978-3-319-77878-5_15)
- Jin, R., Liu, T., Liu, G., Zhou, J., Huang, J., & Wang, A. (2015). Simultaneous Heterotrophic Nitrification and Aerobic Denitrification by the Marine Origin Bacterium *Pseudomonas* sp. ADN-42. *Applied Biochemistry and Biotechnology*, 175(4), 2000–2011. <https://doi.org/10.1007/s12010-014-1406-0>
- Joo, H.-S., Hirai, M., & Shoda, M. (2005). Characteristics of ammonium removal by heterotrophic nitrification-aerobic denitrification by *Alcaligenes faecalis* No. 4. *Journal of Bioscience and Bioengineering*, 100(2), 184–191. <https://doi.org/10.1263/jbb.100.184>

- Jorquera, M. A., et al. (2012). "The effect of salinity on nitrification and denitrification in marine environments." *Aquatic Microbial Ecology*, 67(1), 1-10. <https://doi.org/10.3354/ame01608>
- Knowles, R. (1982). Denitrification. *Microbiological Reviews*, 46(1), 43–70. <https://doi.org/10.1128/mmbr.46.1.43-70.1982>
- Kowalchuk, G. A., & Stephen, J. R. (2001). Ammonia-oxidizing bacteria: A model for molecular microbial ecology. *Annual Review of Microbiology*, 55(1), 485–529. <https://doi.org/10.1146/annurev.micro.55.1.485>
- Kuo, C. M., Chen, J. C., & Lee, H. H. (1995). Effect of nitrite exposure on immune responses of tiger shrimp (*Penaeus monodon*). *Comparative Biochemistry and Physiology Part C: Pharmacology, Toxicology and Endocrinology*, 110(1), 49–55. [https://doi.org/10.1016/0742-8413\(94\)00081-U](https://doi.org/10.1016/0742-8413(94)00081-U)
- Lehtovirta-Morley LE, Ross J, Hink L, Weber EB, Gubry-Rangin C, Thion C, Prosser JI, Nicol GW. Isolation of 'Candidatus Nitrosocosmicus franklandus', a novel ureolytic soil archaeal ammonia oxidiser with tolerance to high ammonia concentration. *FEMS Microbiol Ecol*. 2016 May; 92(5): fiw057. doi: 10.1093/femsec/fiw057. Epub 2016 Mar 13. PMID: 26976843; PMCID: PMC4830249.
- Lang, X., Zhang, Y., Wang, J., & Li, H. (2023). Exploring the nitrogen removal capacity of *Klebsiella aerogenes* B23 isolated from shrimp farm wastewater. *Aquaculture International*, 31, 1224–1238. <https://doi.org/10.1007/s10499-023-01224-2>
- Liao, C., Huang, X., Wang, Q., & Yu, G. (2020). Genomic and phenotypic insights into environmental adaptation of *Pseudomonas aeruginosa* from different habitats. *BMC Genomics*, 21(1), 865. <https://doi.org/10.1186/s12864-020-07272-1>
- Liu, L., Sun, F., Zhao, H., Mi, H., He, S., Chen, Y., Liu, Y., Lan, H., Zhang, M., & Wang, Z. (2021). Compositional changes of sedimentary microbes in the Yangtze River Estuary and their roles in the biochemical cycle. *Science of The Total Environment*, 760, 143383. <https://doi.org/10.1016/j.scitotenv.2020.143383>
- Logan, J. M., Edwards, K. J., & Saunders, N. A. (2020). Real-time PCR: Current technology and applications. Horizon Scientific Press.
- Madigan, M. T. (2009). *Brook Biology of Microorganism* (11th ed.). Person PracticeHall. New Jersey.
- Madigan, M. T., Bender, K. S., Buckley, D. H., Sattley, W. M., & Stahl, D. A. (2018). *Brock Biology of Microorganisms* (15th ed.). Pearson.
- Nakano, M., Inagaki, T., Okunishi, S., Tanaka, R., & Maeda, H. (2010). Effect of salinity on denitrification under limited single carbon source by *Marinobacter* sp. isolatd from marine sediment: Effect of salinity on

- denitrification under limited single carbon source by *Marinobacter* sp. isolatd from marine sediment. *Journal of Basic Microbiology*, 50(3), 285–289. <https://doi.org/10.1002/jobm.200900250>
- Neissi, A., Rafiee, G., Rahimi, S., Farahmand, H., Pandit, S., & Mijakovic, I. (2021). Enriched Microbial Communities for Ammonium and Nitrite Removal from Recirculating Aquaculture Systems. <https://doi.org/10.21203/rs.3.rs-636504/v1>
- Ohbayashi, T., Wang, Y., Aoyagi, L. N., Hara, S., Tago, K., & Hayatsu, M. (2023). Diversity of the Hydroxylamine Oxidoreductase (HAO) Gene and Its Enzyme Active Site in Agricultural Field Soils. *Microbes and Environments*, 38(4). [https://doi.org/10.1264/jsme2.ME23068&#8203;;:contentReference\[oaicite:9\]{index=9}](https://doi.org/10.1264/jsme2.ME23068&#8203;;:contentReference[oaicite:9]{index=9})
- Palleroni, N. J. (Ed.). (1984). *Bergey's manual of systematic bacteriology* (Vol. 1). Springer-Verlag.
- Pauley, G. B., et al. (2014). "Salinity effects on vannamei shrimp culture systems." *Aquaculture Research*, 45(4), 625-633. <https://doi.org/10.1111/are.12101>
- Prosser, J. I. (1989). Autotrophic nitrification in bacteria. *Advances in Microbial Physiology*, 30, 125–181. [https://doi.org/10.1016/S0065-2911\(08\)60112-5](https://doi.org/10.1016/S0065-2911(08)60112-5)
- Prosser, J. I. (2005). Nitrosospira multiformis and its role in ammonia oxidation in diverse environments. *FEMS Microbiology Ecology*, 53(3), 293–303. <https://doi.org/10.1016/j.femsec.2005.01.005>
- Pujihastuti, Y. P. (2011). Nitrification and denitrification in pond. *Jurnal AkuakulturIndonesia*, 10(1), 89. <https://doi.org/10.19027/jai.10.89-98>
- Quartaroli, L. (2016). Nitrification of petroleum extrctation produced water Salt concentration and nitrifying activity. *Enviromental Engineering Science*.
- Sambrook, J., & Russell, D. W. (2001). *Molecular cloning: A laboratory manual* (3rd ed.). Cold Spring Harbor Laboratory Press.
- Sengupta, S., Ergas, S. J., Lopez-Luna, E., Sahu, A. K., & Palaniswamy, K. (2006). Autotrophic Biological Denitrification for Complete Removal of Nitrogen from Septic Sistem Wastewater. *Water, Air, & Soil Pollution: Focus*, 6(1–2), 111–126. <https://doi.org/10.1007/s11267-005-9001-6>
- Silva, L. C. F., Lima, H. S., Sartoratto, A., Sousa, M. P. de, Torres, A. P. R., Souza, R. S. de, de Paula, S. O., Oliveira, V. M. de, & Silva, C. C. da. (2018). Effect of salinity in heterotrophic nitrification/aerobic denitrification performed by acclimated microbiota from oil-produced water biological treatment sistem. *International Biodeterioration & Biodegradation*, 130, 1–7. <https://doi.org/10.1016/j.ibiod.2018.03.009>

- Sin, Y., & Lee, H. (2020). Changes in hydrology, water quality, and algal blooms in a freshwater system impounded with engineered structures in a temperate monsoon river estuary. *Journal of Hydrology: Regional Studies*, 32, 100744. <https://doi.org/10.1016/j.ejrh.2020.100744>
- Singh, P., Singh, R. K., Li, H.-B., Guo, D.-J., Sharma, A., & Lakshmanan, P. (2020). Diazotrophic bacteria *Pantoea dispersa* and *Enterobacter asburiae* promote sugarcane growth by inducing nitrogen uptake and defense-related gene expression. *Frontiers in Microbiology*, 11, 600417. <https://doi.org/10.3389/fmicb.2020.600417>
- Singh, R. K., Singh, P., Li, H.-B., Guo, D.-J., Sharma, A., & Lakshmanan, P. (2021). Root-derived endophytic diazotrophic bacteria *Pantoea dispersa* and *Enterobacter asburiae* promote sugarcane growth by inducing nitrogen uptake and defense-related gene expression. *Frontiers in Microbiology*, 12, 774707. <https://doi.org/10.3389/fmicb.2021.774707>
- Srithep, P., Khinthong, B., Chodanon, T. *et al.* Communities of ammonia-oxidizing bacteria, ammonia-oxidizing archaea and nitrite-oxidizing bacteria in shrimp ponds. *Ann Microbiol* **65**, 267–278 (2015). <https://doi.org/10.1007/s13213-014-0858-3>
- Stein LY, Arp DJ. Loss of ammonia monooxygenase activity in *Nitrosomonas europaea* upon exposure to nitrite. *Appl Environ Microbiol*. 1998 Oct;64(10):4098-102. doi: 10.1128/AEM.64.10.4098-4102.1998. PMID: 9758853; PMCID: PMC106612.
- Stein, L. Y., Arp, D. J., Berube, P. M., Chain, P. S. G., Hauser, L., Jetten, M. S. M., Klotz, M. G., Larimer, F. W., Norton, J. M., Op den Camp, H. J. M., Shin, M., & Wei, X. (2007). Whole-genome analysis of the ammonia-oxidizing bacterium, *Nitrosomonas eutropha* C91: Implications for niche adaptation. *Environmental Microbiology*, 9(12), 2993–3007. <https://doi.org/10.1111/j.1462-2920.2007.01409.x>
- Tamura, K., Stecher, G., & Kumar, S. (2021). MEGA11: Molecular Evolutionary Genetics Analysis version 11. *Molecular Biology and Evolution*, 38(7), 3022-3027. <https://doi.org/10.1093/molbev/msab120>
- Torrentó, C., Cama, J., Urmeneta, J., Otero, N., & Soler, A. (2010). Denitrification of groundwater with pyrite and *Thiobacillus denitrificans*. *Chemical Geology*, 278(1–2), 80–91. <https://doi.org/10.1016/j.chemgeo.2010.09.003>
- Trung Tran, T., Bott, N. J., Dai Lam, N., Trung Nguyen, N., Hoang Thi Dang, O., Hoang Le, D., Tung Le, L., & Hoang Chu, H. (2019). The Role of *Pseudomonas* in Heterotrophic Nitrification: A Case Study on Shrimp Ponds (*Litopenaeus vannamei*) in Soc Trang Province. *Microorganisms*, 7(6), 155. <https://doi.org/10.3390/microorganisms7060155>

- Valencia-Castañeda, G., Frías-Espericueta, M. G., Vanegas-Pérez, R. C., Pérez-Ramírez, J. A., Chávez-Sánchez, M. C., & Páez-Osuna, F. (2018). Acute Toxicity of Ammonia, Nitrite and Nitrate to Shrimp *Litopenaeus vannamei* Postlarvae in Low-Salinity Water. *Bulletin of Environmental Contamination and Toxicology*, 101(2), 229–234. <https://doi.org/10.1007/s00128-018-2355-z>
- Van Kessel, M. A. H. J., Speth, D. R., Albertsen, M., Nielsen, P. H., Op den Camp, H. J. M., Kartal, B., Jetten, M.S.M., and Lücker, S. 2015. Complete nitrification by a single microorganism. *Nature*, 528(7583), 555–559. doi:10.1038/nature16459
- Wagner, M., Loy, A., Klein, M., Lee, N., & Daims, H. (2010). Functional bacterial community analysis: The role of single-cell techniques. *Microbial Ecology*, 60(4), 592-608. <https://doi.org/10.1007/s00248-010-9710-6>
- Wang, B., Wang, Z., Wang, S., Qiao, X., Gong, X., Gong, Q., Liu, X., & Peng, Y. (2020). Recovering partial nitrification in a PN/A system during mainstream wastewater treatment by reviving AOB activity after thoroughly inhibiting AOB and NOB with free nitrous acid. *Environment International*, 139, 105684. <https://doi.org/10.1016/j.envint.2020.105684>
- Wang, H., Zhang, Z., & Li, X. (2018). *Acinetobacter spp.* as key degraders of protein and polymeric organic matter in activated sludge and biofilm systems. *Applied Microbiology and Biotechnology*, 102(5), 2305–2315. <https://doi.org/10.1007/s00253-018-8765-2>
- Wang, L., Sun, Y., Xu, B., Sagada, G., Chen, K., Xiao, J., Zhang, J., & Shao, Q. (2020). Effects of berberine supplementation in high starch diet on growth performance, antioxidative status, immune parameters and ammonia stress response of fingerling black sea bream (*Acanthopagrus schlegelii*). *Aquaculture*, 527, 735473. <https://doi.org/10.1016/j.aquaculture.2020.735473>
- Wang, Y., Zhang, X., & Wang, Y. (2019). Insights into the Variations of Hao-Dependent Nitrifying and Nir-Dependent Denitrifying Microbial Communities in Ammonium-Graduated Lake Environments. *Applied Sciences*, 9(16), 3229. <https://doi.org/10.3390/app9163229>
- Ward, B. B., et al. (2003). "Nitrification in marine and estuarine ecosystems: A review." *Environmental Science & Technology*, 37(17), 4941-4951. <https://doi.org/10.1021/es034254g>
- Wei D, Zeng S, Hou D, Zhou R, Xing C, Deng X, Yu L, Wang H, Deng Z, Weng S, Huang Z, He J. Community diversity and abundance of ammonia-oxidizing archaea and bacteria in shrimp pond sediment at different culture stages. *J Appl Microbiol.* 2021 May;130(5):1442-1455. doi: 10.1111/jam.14846. Epub 2020 Oct 20. PMID: 33021028.

- Widiyanto, T. (2006). *Seleksi bakteri nitrifikasi dan denitrifikasi untuk bioremediasidi tambak udang [disertasi]*. Bogor (ID): Institut Pertanian Bogor.
- Wright, C.L. and Lehtovirta-Morley, L.E. (2023) ‘Nitrification and beyond: Metabolic versatility of ammonia oxidising archaea’, *The ISME Journal*, 17(9), pp. 1358–1368. doi:10.1038/s41396-023-01467-0.
- Wu, H., Wang, J., Chen, J., Wang, X., Li, D., Hou, J., & He, X. (2021). Advanced nitrogen and phosphorus removal by combining endogenous denitrification and denitrifying dephosphatation in constructed wetlands. *Journal of Environmental Management*, 294, 112967. <https://doi.org/10.1016/j.jenvman.2021.112967>
- Yang, L., Liu, W., Zhang, Y., Xu, X., & Liu, G. (2017). Characteristics and complete genome sequence of heterotrophic nitrification-aerobic denitrification bacterium *Paracoccus aminovorans* strain JSH5. *Scientific Reports*, 7(1), 1-11. <https://doi.org/10.1038/s41598-017-07185-0>
- Yu, R., & Chandran, K. (2010). Strategies of *Nitrosomonas europaea* for coping with nutrient and oxygen fluctuations. *Bioresource Technology*, 101(14), 5270–5276. <https://doi.org/10.1016/j.biortech.2010.02.007>
- Yu, R., & Chandran, K. (2010). Strategies of *Nitrosomonas europaea* 19718 to counter low dissolved oxygen and high nitrite concentrations. *BMC Microbiology*, 10(1), 70. <https://doi.org/10.1186/1471-2180-10-70>
- Yuka, R. A., Setyawan, A., & Supono, S. (2021). Identifikasi bakteri BIOREMEDIASI PENDEGRADASI total ammonia nitrogen (tan). *Jurnal Kelautan: Indonesian Journal of Marine Science and Technology*, 14(1), 20–29. <https://doi.org/10.21107/jk.v14i1.8499>
- Zhang, L., He, Y., & Li, Y. (2017). Biochemical characteristics of heterotrophic nitrifying bacteria and their role in nitrogen removal. *Journal of Applied Microbiology*, 122(5), 1181-1191.
- Zhang, Q. L. (2012). The Characteristic of a Novel heterotrophic nitrification-aerobic denitrification bacterium, *Bacillus methylotropus* strain L7. *Bioresource Technology*.
- Zhang, S., Pang, S., Wang, P., Wang, C., & Zhang, D. (2017). Physiological and proteomic adaptation of *Acinetobacter johnsonii* in response to carbon starvation in drinking water. *Frontiers in Microbiology*, 8, 2211. <https://doi.org/10.3389/fmicb.2017.02211>
- Zhang, X., et al. (2022). Advances in understanding heterotrophic nitrification and its role in nitrogen removal from aquatic systems. *Water Research*, 217, 118384.
- Zhang, X., Liu, Y., Liu, S., & Wang, Y. (2017). Role of *Pseudomonas putida* in supporting nitrifying communities by providing organic carbon sources in

wastewater treatment. *Environmental Science & Technology*, 51(15), 8792–8801. <https://doi.org/10.1021/es201745a>

Zhao, B., He, Y. L., Hughes, J., & Zhang, X. F. (2010). Heterotrophic nitrogen removal by a newly isolated *Acinetobacter calcoaceticus* HNR. *Bioresource Technology*, 101(14), 5194–5200. <https://doi.org/10.1016/j.biortech.2010.02.043>

Zheng, H., Liu, Y., Sun, G., Gao, X., Zhang, Q., & Liu, Z. (2011). Denitrification characteristics of a marine origin psychrophilic aerobic denitrifying bacterium. *Journal of Environmental Sciences*, 23(11), 1888–1893. [https://doi.org/10.1016/S1001-0742\(10\)60615-8](https://doi.org/10.1016/S1001-0742(10)60615-8)

Zhou, J., et al. (2023). The diversity and function of heterotrophic nitrifiers in aquaculture systems. *Aquaculture Research*, 54(8), 3137–3150. <https://doi.org/10.1111/are.16345>

Zhou, J., Li, X., & Wang, Y. (2021). Heterotrophic nitrification characteristics of *Alcaligenes faecalis* under aerobic conditions. *Scientific Reports*, 11, Article 2579. <https://doi.org/10.1038/s41598-021-02579-3>