DAFTAR PUSTAKA

Ali, M., Chai, L., Tang, C., Zheng, P., Min, X., Yang, Z., … Song, Y. (2013). *The Increasing Interest of ANAMMOX Research in China : Bacteria , Process Development , and Application*. *2013*.

Anthonisen, A., Loehr, R., Prakasam, T., & Srinath, E. (1976). Inhibition of nitrification by ammonia and nitrous acid. *Water Pollution Control Federation*, *48*(5), 835–852. https://doi.org/10.1017/CBO9781107415324.004

Bi, Z., Qiao, S., Zhou, J., Tang, X., & Zhang, J. (2014). Fast start-up of Anammox process with appropriate ferrous iron concentration. *Bioresource Technology*, *170*, 506–512. https://doi.org/10.1016/j.biortech.2014.07.106

Carlos Augusto de Lemos Chernicharo. (2007). Biological Wastewater Treatment Vol.4: Anaerobic Reactors. In *Biological wastewater treatment in warm climate regions* (Vol. 4). https://doi.org/10.1017/CBO9781107415324.004

Chen, C., Huang, X., Lei, C., Zhu, W., Chen, Y., & Wu, W. (2012). Improving Anammox start-up with bamboo charcoal. *Chemosphere*, *89*(10), 1224–1229. https://doi.org/10.1016/J.CHEMOSPHERE.2012.07.045

Chen, C., Zhu, W., Chen, Y., Wu, W., Lei, C., & Huang, X. (2012). Improving Anammox start-up with bamboo charcoal. *Chemosphere*, *89*(10), 1224–1229. https://doi.org/10.1016/j.chemosphere.2012.07.045

Chen, W., Dai, X., Cao, D., Hu, X., Liu, W., & Yang, D. (2017). Characterization of a microbial community in an Anammox process using stored Anammox sludge. *Water (Switzerland)*, *9*(11), 1–11. https://doi.org/10.3390/w9110829

Damanik, M. M. B. B. H. S. F. ;H H. (2011). *Kesuburan Tanah dan Pemupukan*. Universitas Sumatera Utara.

Dapena-Mora, A., Campos, J. L., Mosquera-Corral, A., Jetten, M. S. M., & Méndez, R. (2004). Stability of the ANAMMOX process in a gas-lift reactor and a SBR. *Journal of Biotechnology*, *110*(2), 159–170. https://doi.org/10.1016/j.jbiotec.2004.02.005

Darjamuni. (2003). Siklus nitrogen di laut. *Institut Pertanian Bogor*, 1–13.

Daverey, A., Su, S. H., Huang, Y. T., Chen, S. S., Sung, S., & Lin, J. G. (2013). Partial nitrification and anammox process: A method for high strength optoelectronic industrial wastewater treatment. *Water Research*. https://doi.org/10.1016/j.watres.2013.01.028

Dong, L. F., Nedwell, D. B., Underwood, G. J. C., Thornton, D. C. O., & Rusmana, I. (2002). Nitrous oxide formation in the Colne estuary, England: The central role of nitrite. *Applied and Environmental Microbiology*, *68*(3), 1240–1249. https://doi.org/10.1128/AEM.68.3.1240-1249.2002

Duda, A. M. (2006). Policy, legal and institutional reforms for public-private partnerships needed to sustain large marine ecosystems of East Asia. *Ocean and Coastal Management*, *49*(9–10), 649–661. https://doi.org/10.1016/j.ocecoaman.2006.06.003

Dwiyanti, D., & Moersidik, S. S. (2013). *Dinamika nitrogen di perairan muara sungai ciliwung*. (April 2005), 1151–1157.

Effendi, H. (2003). *Telaah Kualitas Air Bagi Pegelolaan Sumberdaya dan Lingkungan Perairan*. Yogyakarta: Kanisius.

Fukuzaki, Y., Yang, J., Zhang, L., Hira, D., & Furukawa, K. (2010). High-rate nitrogen removal by the Anammox process at ambient temperature. *Bioresource Technology*, *102*(2), 672–676. https://doi.org/10.1016/j.biortech.2010.08.039

Gerardi, M. H. (2002). *Nitrification and Denitrification in the Activated Sludge Process*. New York: John Wiley and Sons, Inc.

Halling Sørensen, B. ; S. E. J. (1993). *The Removal of Nitrogen Compounds from Wastewater* (1st Editio). Amsterdam ;New York: Elsevier Science.

Hsia, T. H., Feng, Y. J., Ho, C. M., Chou, W. P., & Tseng, S. K. (2008). PVA-alginate immobilized cells for anaerobic ammonium oxidation (anammox) process. *Journal of Industrial Microbiology and Biotechnology*, *35*(7), 721–727. https://doi.org/10.1007/s10295-008-0336-7

Ibrahim, M., Yusof, N., Mohd Yusoff, M. Z., & Hassan, M. A. (2016). Enrichment of anaerobic ammonium oxidation (anammox) bacteria for short start-up of the anammox process: a review. *Desalination and Water Treatment*, *57*(30), 13958–13978. https://doi.org/10.1080/19443994.2015.1063009

Isaka, K., Sumino, T., & Tsuneda, S. (2007). High nitrogen removal performance at moderately low temperature utilizing anaerobic ammonium oxidation reactions. *Journal of Bioscience and Bioengineering*, *103*(5), 486–490. https://doi.org/10.1263/jbb.103.486

Islam, M. S. (2005). Nitrogen and phosphorus budget in coastal and marine cage aquaculture and impacts of effluent loading on ecosystem: review and analysis towards model development. *Marine Pollution Bulletin*, *50*(1), 48–61. https://doi.org/10.1016/J.MARPOLBUL.2004.08.008

Jin, R. C., Yang, G. F., Yu, J. J., & Zheng, P. (2012a). The inhibition of the Anammox process: A review. *Chemical Engineering Journal*, *197*, 67–79. https://doi.org/10.1016/j.cej.2012.05.014

Jin, R. C., Yang, G. F., Yu, J. J., & Zheng, P. (2012b). The inhibition of the Anammox process: A review. *Chemical Engineering Journal*, Vol. 197, pp. 67–79. https://doi.org/10.1016/j.cej.2012.05.014

Jin, R. C., Zheng, P., Hu, A. H., Mahmood, Q., Hu, B. L., & Jilani, G. (2008). Performance comparison of two anammox reactors: SBR and UBF. *Chemical Engineering Journal*, *138*(1–3), 224–230. https://doi.org/10.1016/j.cej.2007.06.038

Kalvelage, T., Jensen, M. M., Contreras, S., Revsbech, N. P., Lam, P., Günter, M., … Kuypers, M. M. M. (2011). Oxygen sensitivity of anammox and coupled N-cycle processes in oxygen minimum zones. *PLoS ONE*, *6*(12). https://doi.org/10.1371/journal.pone.0029299

Kartal, B., Almeida, N. M. De, Maalcke, W. J., Camp, H. J. M. O. Den, Jetten, M. S. M., & Keltjens, J. T. (2013). *How to make a living from anaerobic ammonium oxidation*. https://doi.org/10.1111/1574-6976.12014

Kartal, B., Maalcke, W. J., De Almeida, N. M., Cirpus, I., Gloerich, J., Geerts, W., … Strous, M. (2011). Molecular mechanism of anaerobic ammonium oxidation. *Nature*, *479*(7371), 127–130. https://doi.org/10.1038/nature10453

Kartal, B., Rattray, J., van Niftrik, L. A., van de Vossenberg, J., Schmid, M. C., Webb, R. I., … Strous, M. (2007). Candidatus "Anammoxoglobus propionicus" a new propionate oxidizing species of anaerobic ammonium oxidizing bacteria. *Systematic and Applied Microbiology*, *30*(1), 39–49. https://doi.org/10.1016/J.SYAPM.2006.03.004

Karthikeyan, O. P., & Joseph, K. (2007). Anaerobic Ammonium Oxidation (Anammox) Process for Nitrogen Removal – a Review. *Biological Methods of Waste Treatment and Management in South India*, (November 2016), 102–111.

Karthikeyan, O. P., & Joseph, K. (2009). " Anammox " A Novel Process For Nitrgoen Management In Bioreactor Landfills – A Review.

Kindaichi, T., Tsushima, I., Ogasawara, Y., Shimokawa, M., Ozaki, N., Satoh, H., & Okabe, S. (2007). In situ activity and spatial organization of anaerobic ammonium-oxidizing (anammox) bacteria in biofilms. *Applied and Environmental Microbiology*, *73*(15), 4931–4939. https://doi.org/10.1128/AEM.00156-07

Kumar, M., Daverey, A., Gu, J.-D., & Lin, J.-G. (2017). Anammox Processes. *Current Developments in Biotechnology and Bioengineering*, 381–407. https://doi.org/10.1016/B978-0-444-63665-2.00015-1

Kurup, R. (2018). Implementation Of Eei-Anammox Process For Wastewater Treatment. *Water E-Journal*, *3*(1), 1–6. https://doi.org/10.21139/wej.2018.007

Lettinga, G., Hulshoff Pol, L. W., Koster, I. W., Wiegant, W. M., De Zeeuw, W. J., Rinzema, A., … Hobma, S. W. (1984). High-rate anaerobic waste-water treatment using the UASB reactor under a wide range of temperature conditions. *Biotechnology and Genetic Engineering Reviews*, *2*(1), 253. https://doi.org/10.1080/02648725.1984.10647801

Li, X., & Sung, S. (2015). Development of the combined nitritation-anammox process in an upflow anaerobic sludge blanket (UASB) reactor with anammox granules. *Chemical Engineering Journal*, *281*, 837–843. https://doi.org/10.1016/j.cej.2015.07.016

Lotti, T., Kleerebezem, R., Hu, Z., Kartal, B., Jetten, M. S. M., & van Loosdrecht, M. C. M. (2014). Simultaneous partial nitritation and anammox at low temperature with granular sludge. *Water Research*, *66*, 111–121. https://doi.org/10.1016/j.watres.2014.07.047

Lotti, T., Kleerebezem, R., Van Erp Taalman Kip, C., Hendrickx, T. L. G., Kruit, J., Hoekstra, M., & Van Loosdrecht, M. C. M. (2014). Anammox growth on

pretreated municipal wastewater. *Environmental Science and Technology*, *48*(14), 7874–7880. https://doi.org/10.1021/es500632k

Ma, B., Peng, Y., Zhang, S., Wang, J., Gan, Y., Chang, J., … Zhu, G. (2013). Performance of anammox UASB reactor treating low strength wastewater under moderate and low temperatures. *Bioresource Technology*, *129*, 606–611. https://doi.org/10.1016/j.biortech.2012.11.025

Madigan, M. T., Martinko, J. M., Stahl, D. A., & Clark, D. P. (2009). Brock Biology of Microorganisms 13th Edition. In *Benjamin Cummings* (Vol. 53). https://doi.org/10.1017/CBO9781107415324.004

Manahan, S. E. (2005). *Environmental chemistry* (8th Editio). New York: CRC Press LLC.

Mason, C. (2002). *Biology of Freshwater Pollution*.

Mulder. A, V. de G. A. (1995). *Anaerobic Ammonium Oxidation Discovered In a Denitrifying Fluidized Bed Reactor*.

Mulder, A., van de Graaf, A. A., Robertson, L. A., & Kuenen, J. G. (1995). Anaerobic ammonium oxidation discovered in a denitrifying fluidized bed reactor. *FEMS Microbiology Ecology*, *16*(3), 177–183. https://doi.org/10.1016/0168-6496(94)00081-7

Niu, Q., He, S., Zhang, Y., Ma, H., Liu, Y., & Li, Y. Y. (2016). Process stability and the recovery control associated with inhibition factors in a UASB-anammox reactor with a long-term operation. *Bioresource Technology*, *203*, 132–141. https://doi.org/10.1016/j.biortech.2015.12.003

Notoadmojo. (2003). Pendidikan dan Perilaku Kesehatan. In *Rineka Cipta*. https://doi.org/10.1016/j.jallcom.2009.10.130

Pratama, N. A. (2017). *Pertumbuhan Bakteri Anammox pada Berbagai Salinitas*. Universitas Diponegoro, Semarang.

Puyol, D., Carvajal-Arroyo, J. M., Garcia, B., Sierra-Alvarez, R., & Field, J. A. (2013). Kinetic characterization of Brocadia spp.-dominated anammox cultures. *Bioresource Technology*, *139*, 94–100. https://doi.org/10.1016/j.biortech.2013.04.001

Qiao, S., Tian, T., Duan, X., Zhou, J., & Cheng, Y. (2013). Novel single-stage autotrophic nitrogen removal via co-immobilizing partial nitrifying and anammox biomass. *Chemical Engineering Journal*. https://doi.org/10.1016/j.cej.2013.06.048

Said, N. I. (2006). *Paket Teknologi Pengolahan Air Limbah Rumah Sakit*. *2*(1), 52–65.

Samekto, R. (2009). Anammox: Suatu Proses Baru Dalam Daur Nitrogen Yang Menawarkan Banyak Peluang Dalam Pengelolaan Pencemaran Air Akibat Nitrogen. *Jurnal Inovasi Pertanian*, *8*(1), 73–86.

Schmid, M., Walsh, K., Webb, R., Rijpstra, W. I., van de Pas-Schoonen, K., Verbruggen, M. J., … Strous, M. (2003). Candidatus “Scalindua brodae”, sp. nov., Candidatus “Scalindua wagneri”, sp. nov., Two New Species of

Anaerobic Ammonium Oxidizing Bacteria. *Systematic and Applied Microbiology*, *26*(4), 529–538. https://doi.org/10.1078/072320203770865837

Sparacino-Watkins, C., Stolz, J. F., & Basu, P. (2014). Nitrate and periplasmic nitrate reductases. *Chemical Society Reviews*, Vol. 43, pp. 676–706. https://doi.org/10.1039/c3cs60249d

Standar Nasional Indonesia (SNI). (1991a). Metode pengambilan contoh kualitas air. *Sni 06-2412-1991*, (1991), 1–48.

Standar Nasional Indonesia (SNI). (1991b). *Pengujian Kadar Amonium Dalam Air*. 2479.

Standar Nasional Indonesia (SNI). (2004). Air dan air limbah – Bagian 2: Cara uji kebutuhan oksigen kimiawi (KOK) dengan refluks tertutup secara spektrofotometri. *Sni 06-6989.2-2004*, (2).

Standar Nasional Indonesia (SNI). (2011). *Kualitas air laut – Bagian 7: Cara uji nitrat (NO 3_ N) dengan reduksi kadmium secara spektrofotometri*. (3).

Strous, M., Heijnen, J. J., Kuenen, J. G., & Jetten, M. S. M. (1998a). The sequencing batch reactor as a powerful tool for the study of slowly growing anaerobic ammonium-oxidizing microorganisms. *Applied Microbiology and Biotechnology*, *50*(5), 589–596. https://doi.org/10.1007/s002530051340

Strous, M., Heijnen, J. J., Kuenen, J. G., & Jetten, M. S. M. (1998b). The sequencing batch reactor as a powerful tool for the study of slowly growing anaerobic ammonium-oxidizing microorganisms. *Applied Microbiology and Biotechnology*, *50*(5), 589–596. https://doi.org/10.1007/s002530051340

Strous, M., Kuenen, J. G., & Jetten, M. S. M. (1999a). Key physiology of anaerobic ammonium oxidation. *Applied and Environmental Microbiology*, *65*(7), 3248–3250. https://doi.org/papers2://publication/uuid/E9A1573A-6D62-420E-94D0-CA7C84D0FEB9

Strous, M., Kuenen, J. G., & Jetten, M. S. M. (1999b). Key Physiology of Anaerobic Ammonium Oxidation. *Applied and Environmental Microbiology*, *65*(7), 0–3. https://doi.org/papers2://publication/uuid/E9A1573A-6D62-420E-94D0-CA7C84D0FEB9

Sun, S., Song, Y., Yang, X. J., Hu, H., Wu, S., Qi, W. kang, & Li, Y. Y. (2018). Strategies for improving nitrogen removal under high sludge loading rate in an anammox membrane bioreactor operated at 25 °C. *Chemical Engineering Science*, *183*, 106–114. https://doi.org/10.1016/j.ces.2018.03.011

Szatkowska, A. B., & Paulsrud, B. (2014). The anammox process for nitrogen removal from wastewater – achievements and future challenges. *Innsendte Artikler*, *2*, 187–194. Retrieved from https://vannforeningen.no/wp-content/uploads/2015/06/2014_902654.pdf

Tang, C. J., Zheng, P., Wang, C. H., Mahmood, Q., Zhang, J. Q., Chen, X. G., … Chen, J. W. (2011). Performance of high-loaded ANAMMOX UASB reactors containing granular sludge. *Water Research*, *45*(1), 135–144. https://doi.org/10.1016/j.watres.2010.08.018

Tchobanoglous, G. (2003). The Importance of Decentralized Wastewater Management in the Twenty-First Century. *The 2003 Clarke Prize Honoree*, 14. Retrieved from http://www.nwri-usa.org/pdfs/2003 CP Lecture by Tchobanoglous.pdf

U.S. Environmental Protection Agency. (2002). Nitrification. *Distribution System Issue Paper*, 1–17. Retrieved from https://www.epa.gov/sites/production/files/2015-09/documents/nitrification_1.pdf

van der Star, W. R. L., Abma, W. R., Blommers, D., Mulder, J.-W., Tokutomi, T., Strous, M., … van Loosdrecht, M. C. M. (2007a). Startup of reactors for anoxic ammonium oxidation: Experiences from the first full-scale anammox reactor in Rotterdam. *Water Research*, *41*(18), 4149–4163. https://doi.org/10.1016/J.WATRES.2007.03.044

van der Star, W. R. L., Abma, W. R., Blommers, D., Mulder, J. W., Tokutomi, T., Strous, M., … van Loosdrecht, M. C. M. (2007b). Startup of reactors for anoxic ammonium oxidation: Experiences from the first full-scale anammox reactor in Rotterdam. *Water Research*, *41*(18), 4149–4163. https://doi.org/10.1016/j.watres.2007.03.044

van Loosdrecht, M. C. M. (2008). Innovative nitrogen removal. *Biological Wastewater Treatment-Principles, Modelling and Design.*, 139–154.

van Niftrik, L. A., Fuerst, J. A., Damsté, J. S. S., Kuenen, J. G., Jetten, M. S. M., & Strous, M. (2004). The anammoxosome: an intracytoplasmic compartment in anammox bacteria. *FEMS Microbiology Letters*, *233*(1), 7–13. https://doi.org/10.1016/J.FEMSLE.2004.01.044

Van Niftrik, L., Geerts, W. J. C., Van Donselaar, E. G., Humbel, B. M., Webb, R. I., Fuerst, J. A., … Strous, M. (2008). Linking ultrastructure and function in four genera of anaerobic ammonium-oxidizing bacteria: Cell plan, glycogen storage, and localization of cytochrome c proteins. *Journal of Bacteriology*, *190*(2), 708–717. https://doi.org/10.1128/JB.01449-07

Vlaeminck, S. E., Terada, A., Smets, B. F., Van Der Linden, D., Boon, N., Verstraete, W., & Carballa, M. (2009). Nitrogen removal from digested black water by one-stage partial nitritation and anammox. *Environmental Science and Technology*. https://doi.org/10.1021/es803284y

Waki, M., Tokutomi, T., Yokoyama, H., & Tanaka, Y. (2007). Nitrogen removal from animal waste treatment water by anammox enrichment. *Bioresource Technology*, *98*(14), 2775–2780. https://doi.org/10.1016/j.biortech.2006.09.031

Wang, T., Wang, X., Yuan, L., Luo, Z., & Kwame Indira, H. (2019). Start-up and operational performance of Anammox process in an anaerobic baffled biofilm reactor (ABBR) at a moderate temperature. *Bioresource Technology*, *279*(December 2018), 1–9. https://doi.org/10.1016/j.biortech.2019.01.114

Wang, T., Zhang, H., Yang, F., Li, Y., & Zhang, G. (2013). Start-up and long-term operation of the Anammox process in a fixed bed reactor (FBR) filled with novel non-woven ring carriers. *Chemosphere*, *91*(5), 669–675.

https://doi.org/10.1016/J.CHEMOSPHERE.2013.01.026

Widayat, W., Suprihatin, & Herlambang, A. (2010). Penyisihan Amoniak dalam Upaya Meningkatkan Kualitas Air Baku PDAM-IPA Bojong Renged dengan Proses Biofiltrasi Menggunakan Media Plastik. *Jurnal Air Indonesia*, *6*(1), 64–76.

Widiyanto, T. (2005). *Seleksi Bakteri Nitrifikasi Dan Denitrifikasi Untuk Bioremediasi Di Tambak Udang*. Institut Pertanian Bogor.

Widyawati, N. (2011). *Sukses Investasi Massa Depan Dengan Bertanam Pohon Aren*. Yogyakarta: LILY PUBLISHER.

Wilkinson, C., & Salvat, B. (2012). Coastal resource degradation in the tropics: Does the tragedy of the commons apply for coral reefs, mangrove forests and seagrass beds. *Marine Pollution Bulletin*, *64*(6), 1096–1105. https://doi.org/10.1016/j.marpolbul.2012.01.041

Xing, B. S., Guo, Q., Yang, G. F., Zhang, J., Qin, T. Y., Li, P., … Jin, R. C. (2015). The influences of temperature, salt and calcium concentration on the performance of anaerobic ammonium oxidation (anammox) process. *Chemical Engineering Journal*, *265*, 58–66. https://doi.org/10.1016/j.cej.2014.12.007

Yuniasari, D. (2009). *Pengaruh Pemberian Bakteri Nitrifikasi Dan Denitrifikasi Serta Molase Dengan C / N Rasio Berbeda Terhadap Profil Kualitas Air , Kelangsungan Hidup , Dan Pertumbuhan Udang Vaname Litopenaeus vannamei*.

Yuningih. (2007). Keracunan nitrat-nitrit pada ternak ruminansia dan pencegahannya. *J Litbang Pertanian*, *26*(4), 153–159.

Zhang, L., Liu, M., Zhang, S., Yang, Y., & Peng, Y. (2015). Integrated fixed-biofilm activated sludge reactor as a powerful tool to enrich anammox biofilm and granular sludge. *Chemosphere*. https://doi.org/10.1016/j.chemosphere.2015.02.001

Zulkarnaini, Yujie, Q., Yamamoto-Ikemoto, R., & Matsuura, N. (2018). One-stage nitritation/anammox process using a biofilm reactor with two-inflow. *Journal of Water and Environment Technology*, *16*(2), 106–114. https://doi.org/10.2965/jwet.17-050