

## DAFTAR PUSTAKA

- Affandi, R., T. Budiardi, R. Wahju, & A. Taurusman. 2013. Pemeliharaan ikan sidat dengan sistem air bersirkulasi. *Jurnal Ilmu Pertanian Indonesia* 18 (1) : 55-60.
- Alvarado, J.L. 1997. Aquafeeds and the environment. In a. Tacon and b. Basurco, eds. Feeding tomorrow's fish, proceedings of the workshop of the ciheam network on technology of aquaculture in the mediterranean (tecam), jointly organized by ciheam, fao and ieo, mazarron, spain, 24-26 june 1996, ciheam, apodo, Spain. pp. 275–289.
- Anderson, K., D. Lonsway, J. Rasheed, J. Biddle, J. Jensen, L. McDougal, R. Carey, A. Thompson, S. Stocker, B. Limbago, & J. Patel. 2007. Evaluation of methods to identify the *Klebsiella pneumoniae* carbapenemase in Enterobacteriaceae. *Journal of Clinical Microbiology* 45(8) : 2723-2725.
- Andriani, Y., T. Kamil, & I. Iskandar. 2018. Efektivitas probiotik biom-s terhadap kualitas air media pemeliharaan ikan nila nirwana *Oreochromis niloticus*. *Jurnal Ilmu-ilmu Perairan, Pesisir, dan Perikanan* 7 (3) : 209-217.
- Anwar, A., A. Sambu, & A. Malik. 2021. Efektifitas bakteri nitrifikasi dan denitrifikasi pada limbah organik budidaya udang *L.vannamei*. *Jurnal Harpodon Borneo* 14 (2): 102-110.
- Aquarista, F., U. Iskandar, & Subhan. 2012. Pemberian probiotik dengan carrier zeolit pada pembesaran ikan lele dumbo (*Clarias gariepinus*). *Jurnal Perikanan dan Kelautan*, 3(4): 133–140.
- Artdita, C., M. Andityas, N. Prihanani, & Y. Budiyanto. 2020. Deteksi bakteri penyebab mastitis subklinis pada kambing peranakan etawah di Kokap, Kulon Progo, Daerah Istimewa Yogyakarta. *Jurnal Sains Veteriner* 38 (1) : 37-44.
- Ashour, M., A. Alprol, A. Heneash, H. Saleh, K. Abualnaja, D. Alhashmialamerr, & A. Mansour. 2021. Ammonia bioremediation from aquaculture wastewater effluents using *Arthrospira platensis* niof17/003: impact of biodiesel residue and potential of ammonia-loaded biomass as rotifer feed. *Materials* 14 (5460) : 1-22.
- Aswiyanti, I., I. Istiqomah, & A. Isnansetyo. 2021. Isolation and identification of nitrifying bacteria from tilapia (*Oreochromis* sp.) pond in Sleman Yogyakarta Indonesia. *IOP Conf. Series: Earth and Environmental Science* 919 (2021) : 1-13.
- Avnimelech, Y., & G. Ritvo. 2003. Shrimp and fish pond soils: processes and management. *Aquaculture* 220: 549–567.
- Azhar, M., D. Natalia, S. Syukur, Vovien, & Jamsari. 2015. Gene fragments that encodes inulin hydrolysis enzyme from. *International journal of biological chemistry* 9 (2) : 59-69.

- Barati, A., A. Ghaderpour, L.C. Li, W.B. Chui, & L. T. Kwai. 2016. Isolation and characterization of aquatic-borne *Klebsiella pneumoniae* from tropical estuaries in malaysia. *International Journal of Environmental Research and Public Health* 13 (4): 426.
- Bernhard, A. 2010. The nitrogen cycle: processes. *Nature Education Knowledge* 2(2) : 1–8.
- Beye, M., N. Fahsi, D. Raoult, & P. E. Fournier. 2017. Careful use 16s rRNA gene sequence similarity values for the identification of mycobacterium species. *New Microbes and New Infection*. 22: 24-29.
- Boyd, C.E. 2015. Water quality. New York (US). Springer Science 2 (2) : 133-136.
- Brown, A. & H. Smith. 2015. Benson's microbiological applications. 13th edition. McGraw-Hill Education. New York.
- Budiyanto, D., S. Madyowati, & N. Lailiyah. 2020. Daya hambat air perasan jeruk nipis (*Citrus aurantifolia* S.) pada pertumbuhan bakteri *Edwardsiella tarda* dari benih lele dumbo (*Clarias gariepinus*) secara in vitro. *Jurnal Hasil Penelitian (JHP17)* 5 (1) : 11-16.
- Camargo, A., A. Alonso, & A. Salamanca. 2004. Nitrate toxicity to aquatic animals: a review with new data for freshwater invertebrates. *Chemosphere* 58 (2005) : 1255-1267.
- Campos, B., P. Furtado, F. D'Incao, L. Poersch, & W. Wasielesky. 2014. The effect of ammonia, nitrite, and nitrate on the oxygen consumption of juvenile pink shrimp *Farfantepenaeus brasiliensis* (Latreille, 1817) (Crustacea: Decapoda). *Journal of Applied Aquaculture*. 94-101.
- Carter, C. G., D. F. Houlihan, & S. F. Owen. 1998. Protein synthesis, nitrogen excretion and long term growth of juvenile *Pleuronectes flesus*. *J. Fish Biol.* 5, 272–284.
- Chatterjee, S. N., A.A. Syed, & B. Mukhopandhyay. 2014. Diversity of soil bacteria in some village areas adjoining to joypur forest of vankura district of west bengal, india. *International Journal of Environmental Biology*. 4(1): 67-70. ISSN 2277–386X.
- Cheng, C.H., F.F. Yang, R. Z. Ling, S.A. Liao, Y. T. Miao, C. X. Ye & A. L. Wang. 2015. Effects of ammonia exposure on apoptosis, oxidative stress and immune response in pufferfish (*Takifugu obscurus*). *Aquatic Toxicology* 164: 61–71.
- Chrisnawati, V., B. Rahardja, & H. Satyantini. 2018. Pengaruh pemberian probiotik dengan waktu berbeda terhadap penurunan amoniak dan bahan organik total media pemeliharaan udang vaname (*Litopenaeus vannamei*). *Journal of Marine and Coastal Science* 7 (2): 68-77.
- Cowan, S. 1974. Cowan and steel's manual for the identification of medical bacteria 2nd

edition. Cambridge University Press. London.

- Crab, R., Y. Avnimelech, T. Defoirdt, P. Bossier, & W. Verstraete. 2007. Nitrogen removal techniques in aquaculture for a sustainable production. *Aquaculture* 270 (2007) : 1-14.
- Dalsgaard, J., I. Lund, R. Thorarinsdottir, A. Drengstig, K. Arvonen, & P. Pedersen. 2013. Farming Different Species in RAS in Nordic Countries: Current Status and Future Perspectives. *Journal of Aquacultural Engineering*. 53: 2–13.
- Darmayasa, I. 2008. Isolasi dan identifikasi bakteri pendegradasi lipid (lemak) pada beberapa tempat pembuangan limbah dan estuari dam denpasar. *Jurnal Bumi Lestari* 8 : 122-127.
- Datta, S. 2012. Management of water quality in intensive aquaculture. *Respiration* 6: 602.
- Dauda, A., A. Ajadi, A. Tola-Fabunmi, & A. Akinwale. 2018. Waste production in aquaculture: sources, components and managements in different culture systems. *Aquaculture and Fisheries* 4: 81–88.
- Davitsen, B. 1980. The ammonia constraint in aquaculture. Oregon State. Corvallis : 74 pp.
- Day, R.A. & A. L. Underwood. 1999. Analisis kimia kuantitatif edisi 6 (diterjemahkan oleh Dr. Ir. Iis Sopyan, M. Eng.). Erlangga. Jakarta.
- Derome, N., P. Duchesne, & L. Bernatchez. 2006. Parallelism in gene transcription among sympatric lake whitefish ecotypes (*Coregonus clupeaformis* Mitchill). *Journal Molecular Ecology* 15 : 1239-1250.
- Devi, P.A., P. Padmavathy, S. Aanand, & K. Aruljothi. 2017. Review on water quality parameters in freshwater cage fish culture. *International Journal of Applied Research*, 3 (5) : 114-120.
- Dewata, D., M. Azhar, & B. Oktavia. 2016. Identifikasi molekuler gen 16s rRNA isolat bakteri pendegradasi inulin dari rizosfer umbi dahlia. *Chemistry Journal of State University of Padang* 5 (2): 16-21.
- Ebeling, J., M. Timmons, & J. Bisogni. 2006. Engineering analysis of the stoichiometry of photoautotrophic, autotrophic, and heterotrophic removal of ammonia-nitrogen in aquaculture systems. *Aquaculture* 257, 346– 358.
- Feng, Y., J. Feng, & Q. Shu. 2018. Isolation and characterization of heterotrophic nitrifying and aerobic denitrifying *Klebsiella pneumoniae* and *Klebsiella variicola* strains from various environments. *J. Appl. Microbiol* 124 (5) : 1195-1211.
- Garibyan, L., & N. Avashia. 2013. Research techniques made simple: polymerase chain

- reaction (pcr). The Journal of Investigative dermatology 133.
- Gayathiri, E., B. Bharathi, & K. Priya. 2018. Study of the enumeration of twelve clinical important bacterial populations at 0.5 mcfarland standard. International Journal of Creative Research Thoughts 6 (2) : 880-893.
- Gopi, M., T. Kumar, & Prakash, S. 2016. Opportunistic pathogen *Klebsiella pneumoniae* isolated from Maldives's clown fish *Amphiprion nigripes* with hemorrhages at Agatti Island, Lakshadweep archipelago. International Journal of Fisheries and Aquatic Studies 4 (3) : 464-467.
- Hadie, L. & E. Kusnendar, E. 2020. Management strategy for sustainable eel farming. IOP Conf. Series: Earth and Environmental Science 55 (2020) : 1-5.
- Hastuti, Y. 2011. Nitrifikasi dan denitrifikasi di tambak. Jurnal Akuakultur Indonesia 10 (1) : 89-98.
- Holderman, M., E. Queljoe, & S. Rondonuwu. 2017. Identifikasi bakteri pada pegangan eskalator di salah satu pusat perbelanjaan di Kota Manado. Jurnal Ilmiah Sains 17 (1) : 13-18.
- Hrubec, T., S. Smith, & J. Robertson. 1996. Nitrate toxicity: a potential problem of recirculating systems. Successes and Failures in Commercial Recirculating Aquaculture 1: 41-48.
- Irianto, K. 2006. Mikrobiologi. Yrama Widia. Bandung.
- Istiqomah, I., A. Isnansetyo., I. Atitus, & A. Rohman. 2019. Isolasi bakteri selulolitik *Staphylococcus* sp. JC20 dari saluran pencernaan gurita (*Octopus* sp.) untuk kandidat probiotik. Jurnal Perikanan 21 (2): 93-98.
- Johnson, A. & B. Burns. 2022. Hemorrhage . StatPearls Publishing. PubMed.
- Kamaliah. 2017. Perbandingan metode ekstraksi DNA phenol-chloroform dan kit extraction pada sapi aceh dan sapi madura. Jurnal Biotik 5 (1): 60-65.
- Kementerian Kelautan dan Perikanan. 2011. Panduan budidaya ikan sidat *Anguilla* spp. Kementerian Kelautan dan Perikanan.
- Kementerian Kelautan dan Perikanan. 2017. Statistik perikanan budidaya air tawar indonesia, 2017. Jakarta
- Kementerian Kelautan dan Perikanan. 2020. Rencana strategis tahun 2020-2024 DJPB. Kementerian Kelautan dan Perikanan.
- Kesuma, B. W., Budiyanto, & B. Brata. 2019. Efektifitas pemberian probiotik dalam pakan

- terhadap kualitas air dan laju pertumbuhan pada pemeliharaan lele sangkuriang (*Clarias gariepinus*) sistem terpal. Jurnal Penelitian Pengelolaan Sumberdaya Alam Dan Lingkungan 8(2): 21–27.
- Khasani, I. 2008. Isolasi dan skrining bakteri nitrifikasi serta aplikasinya pada biofiltrasi media pemeliharaan larva udang galah *Macrobrachium rosenbergii* de Man. Jurnal Riset Akuakultur 3 (3) : 413-430.
- Khatoun, H., A. Anokhe & V. Kalia. 2022. Catalase test : a biochemical protocol for bacterial identification. AgriCos e-Nwsletter 3 (1): 53-55.
- Kim, J., K. Park, K. Cho, S. Nam, T. Park & R. Bajpai. 2005. Aerobic nitrification-denitrification by heterotrophic *Bacillus* sp. Strains. Bioresource Technology 96 (2005) : 1897-1906.
- Kim, J., Y. Kang, & K. Lee. 2022. Effects of nitrite exposure on the hematological properties, antioxidant and stress responses of juvenile hybrid groupers, *Epinephelus lanceolatus* ♂ × *Epinephelus fuscoguttatus* ♀. Antioxidants 11 (545) : 1-12.
- Kim, K., J. W. Hur, S. Kim, J. Y. Jung & H.S. Han. 2020. Biological wastewater treatment: Comparison of heterotrophs (BFT) with autotrophs (ABFT) in aquaculture systems. Bioresource Technology.
- Kobayashi, M., S. Msangi, M. Batka, S. Vannuccini, M. Dey, & J. Anderson. 2015. Fish to 2030: the role and opportunity for aquaculture. Aquaculture Economics and Management 19: 282–300.
- Kroupova, H., J. Machova, & Z. Svobodova. 2005. Nitrite influence on fish : a review. Vet. Med. –Czech 50 (11) : 461-471.
- Lu, J., Y. Hong, Y. Wei, J. Gu, Y. Wang, F. Ye, & J. Lin. 2021. Nitrification mainly driven by ammonia-oxidizing bacteria and nitrite-oxidizing bacteria in an anammox-inoculated wastewater treatment system. AMB Express 11 (158) : 1-10.
- MacFaddin, J. 1972. Biochemical tests for the identification of medical bacteria. Williams and Wilkins Company. Baltimore, MD.
- Malone, R. F., & T. J. Pfeiffer. 2006. Rating fixed film nitrifying biofilters used in recirculating aquaculture systems. Aquacultural Engineering 34 (3) : 389–402.
- Manurung, U., & D. Susantie. 2017. Identifikasi bakteri patogen pada ikan nila (*Oreochromis niloticus*) di lokasi budidaya ikan air tawar Kabupaten Kepulauan Sangihe. Budidaya Perairan 5 (3) : 11-17.
- Mayunar. 1990. Pengendalian senyawa nitrogen pada budidaya ikan dengan sistem resirkulasi. Oseana 1 (12) : 43-55.

- McGee, M., & C. Cichra. 2000. Principles of water recirculation and filtration in aquaculture. University of Florida Cooperative Extension Service. Institute of Food and Agriculture Sciences. EDIS, Gainesville, FL.
- Meeboon, N., & A. Saimmai. 2019. Characterization of biosurfactant produced by *Bacillus subtilis* AS6 isolated from mangrove sediment in Phuket province. Rajamangala University of Technology Srivijaya Research Journal 11(1): 67-83.
- Montoya, R., dan M. Velasco. 2000. Role of bacteria on nutritional and management strategies in aquaculture systems. Global Aquaculture Advocate 3 (2): 35-36.
- Moore, J. W. 1991. Inorganic contaminants of surface water. Springer-Verlag. New York.
- Mustahal & A. Waqiah. 2012. Identifikasi bakteri yang menginfeksi ikan Garra Rufa (*Cyprinion macrostamus*) di balai besar karantina ikan Soekarno-Hatta. Jurnal Perikanan dan Kelautan 2 (2) : 65-70.
- Mustaqim, R. M. Roza, & B. Leni. 2014. Isolasi dan karakterisasi bakteri probiotik pada saluran pencernaan ikan lais (*Kryptopterus* spp.). JOM MIPA 1 (2) : 248-257.
- Nazar, A., R. Jayakumar, & G. Tamilmani. 2013. Recirculating aquaculture systems. Central Marine Fisheries Research Institute. Kochi. India.
- Nithiya, A., P. Rao, & T. Kumar. 2016. Bioremediation of aquaculture water using nitrifying bacteria-microalga consortium with special reference to ammoniacal nitrogen. International Journal of Current Research and Academic Review 4 (12) : 164-177.
- Nurhidayati, S., F. Faturrahman & M. Ghazali. 2015. Deteksi bakteri patogen yang berasosiasi dengan *Kappaphycus alvarezii* (Doty) bergejala penyakit ice-ice. Jurnal Sains Teknologi & Lingkungan 1(2) : 24–30.
- Octavia, S., M. Kalisvar, I. Venkatachalam, N. Tek, W. Xu, P. Sridatta, V. Fa, L. Wang, A. Chua, B. Cheng, R. Lin, & J. Teo. 2019. *Klebsiella pneumoniae* and *Klebsiella quasipneumoniae* define the population structure of blaKPC-2 *Klebsiella*: a 5 year retrospective genomic study in Singapore. Journal of Antimicrobial Chemotherapy 1-6.
- Padhi, S. K., S. Tripathy, R. Sen, A. Mahapatra, S. Mohanty, & N. Maiti. 2013. Characterisation of heterotrophic nitrifying and aerobic denitrifying *Klebsiella pneumoniae* CF-S9 strain for bioremediation of wastewater. Int. Biodeterioration and Biodegradation 78: 67-73.
- Pal, R. R., A. A. Khardenavis, & H. J. Purohit. 2015. Identification and monitoring of nitrification and denitrification genes in *Klebsiella pneumoniae* EGD-HP19-C for its ability to perform heterotrophic nitrification and aerobic denitrification. Functional & Integrative Genomics 15 (1) : 63–76.



- Paul, I., A. Panigrahi, & S. Datta. 2020. Influence of nitrogen cycle bacteria on nitrogen mineralisation, water quality and productivity of freshwater fish pond: a review. *Asian Fisheries Science* 33 (2020) : 145-160.
- Phuong Ha, H., H. Nguyen, T. Tran, T. Tran, L. Do, & T. Le. 2016. Isolation and selection of nitrifying bacteria with high biofilm formation for treatment of ammonium polluted aquaculture water. *J. Viet. Env.* 8 (1) : 33-40.
- Pitter, P. 1999. *Hydrochemistry in Czech*. Editor VSCHT. Prague. 568 pp.
- Podschun, R., S. Pietsch, C. Holler, & U. Ullman. 2001. Incidence of *Klebsiella* species in surface waters and their expression of virulence factors. *Applied and Environmental Microbiology* 67 (7) : 3325-3327.
- Pratama, W., Prayogo, dan A. Manan. 2017. Effect addition of different probiotic in aquaponic systems towards water quality in aquaculture catfish (*Clarias* sp.). *Journal of Aquaculture Science* 1 (1) : 27-35.
- Putra, A., M. Syamsunarno, W. Ningrum, Jumyanah, & Mustahal. 2020. Effect of the administration of probiotic *Bacillus* NP5 in the rearing media on water quality, growth, and disease resistance of African catfish (*Clarias gariepinus*). *Biodiversitas* 21 (6) : 2566-2575.
- Qi-yu Z., Y. Ping, L. Lai-sheng, & L. Zheng-jin. 2020. Formulation and characterization of a heterotrophic nitrification-aerobic denitrification synthetic microbial community and its application to livestock wastewater treatment. *Water* 12: 218.
- Rana, A., R. Pandey, & B. Ramakrishnan. 2019. Smart bioremediation technologies enzymology of the nitrogen cycle and bioremediation of toxic nitrogenous compounds. Elsevier 45-61.
- Reddy, A. D., G. Subrahmanyam, S. NaveenKumar, I. Karunasagar, & I Karunasagar. 2015. Isolation of ammonia oxidizing bacteria (AOB) from fish processing effluents. *Natl. Acad. Sci. Lett.* 38(5):393–397.
- Reimena, R., Erina, Darniati, Fakhurrrazi, Darmawi, & H. Budiman. 2017. Isolation and Identification of lactic acid bacteria genus *Pediococcus* from Sumatran Orangutan (*Pongo abelii*) faeces at Kandi Zoo and Kinantan Zoo West Sumatera. *Jurnal Medika Veterinaria* 11 (1) : 59-65.
- Richert, K., E. Brambilla, & E. Stackebrandt. 2005. Development of pcr primers spesific for the amplification and direct sequencing of gyrB genes from microbacteria order *Actinomycetales*. *Journal of Microbiological Methods* 60 (1) : 115-123.
- Rodina, A. G. 1972. *Methods in aquatic microbiology* (diterjemahkan oleh R.R. Clwell & M.S. Zambruski). University Park Pers. Baltimore.

- Romillac, N. 2019. Ammonification. Elsevier BV. Vandoeuvre Cedex. Perancis
- Ruiz, P., J. Vidal, D. Sepulveda, C. Torres, G. Villouta, C. Carrasco, F. Aguilera, N. Tagle & H. Urrutia. 2021. Overview and future perspectives of nitrifying bacteria on biofilters for recirculating aquaculture systems. *Reviews in Aquaculture*. 1-17.
- Rusmana, I. 2003. Nitrous oxida formation in bacteria. *Journak Microbiology Indonesia* 8 : 63-66.
- Said, N. I. & R. Tresnawaty. 2001. Penghilangan amoniak di dalam air baku air minum dengan proses biofilter tercelup menggunakan media plastik sarang tawon. *Jurnal Teknologi Lingkungan* 2 (1): 11-27
- Samani, M. N., H. Jafaryan, H. Gholipur, & M. Farhangi. Effect of different concentration of profitable *Bacillus* on bioremediation of common carp (*Cyprinus carpio*) pond discharge. *Journal of Aquatic Animal Health*. 2 (2): 44-54.
- Saputra, A., L. Setijaningsih, Yosmaniar, & T. Prihadi. 2017. Distribusi nitrogen dan fosfor pada budidaya ikan gabus (*Channa striata*) dengan aplikasi eceng gondok (*Eichhornia crassipes*) dan probiotik. *Jurnal Riset Akuakultur* 12 (4) : 379-388.
- Sari, D., Rahmawati, & E. Rusmiyanto. 2019. Deteksi dan identifikasi genera bakteri *Coliform* hasil isolasi dari minuman lidah buaya. *Jurnal Labora Medika* 3 (1) : 29-35.
- Sari, E. P., & A. J. Effendi. 2014. Dinamika populasi bakteri heterotrof dan autotrof pada pengolahan sludge produced water hasil eksplorasi minyak dan gas bumi dengan metode aerated static pile dan degradasi anaerobik. *Jurnal Tehnik Lingkungan* 20 (1) : 68-77.
- Sari, R & P. Apridamayanti. 2014. Cemarkan bakteri *Eschericia coli* dalam beberapa makanan laut yang beredar di pasar tradisional kota pontianak. *Artikel Jurnal Ilmiah Farmasi* 2 (2): 14-19.
- Spieck, E., & A. Lipski. 2011. Cultivation, growth physiology, and chemotaxonomy of nitrite-oxidizing bacteria. In *Methods in Enzymology* (1st ed., Vol. 486, Issue C). Elsevier Inc.
- Standar Nasional Indonesia. 1999. Produksi induk ikan mas (*Cyprinus carpio* Linneaus) strain Majalaya kelas induk pokok (Parent Stock). SNI : 01-6131-1999.
- Standar Nasional Indonesia. 2003. Kualitas air laut bagian 3 : cara uji amonia dengan biru indofenol secara spektrofotometri. SNI 19-6964.3-2003
- Standar Nasional Indonesia. 2004. Bagian 9 : cara uji nitrit secara spektrofotometri. SNI 06-6989.9-2004.



- Standar Nasional Indonesia. 2011. Bagian 79 : cara uji nitrat secara sprktrofotometri. SNI 6989.79 : 2011.
- Steeby, J.A., J. A. Hargreaves, C. S. Tucker. 2004. Factors affecting sediment oxygen demand in commercial channel catfish ponds. *Journal of The World Aquaculture Society* 35 : pp. 322–334.
- Sudaryono, A. 2008. Peranan nutrisi dan teknik pemberian pakan dalam peningkatan produksi akuakultur yang berkelanjutan. *Aquacultura Indonesiana* 9 (1) : 39–47.
- Sukeetha, D., S. Kumar, A. Anikandan, V. Akila, P. Santhanam, & S. Rajakumar. 2020. Effect of immobilized nitrifying bacterial consortium on ammonia biodegradation in aquaculture pond and enhanced growth of *Labeo rohita*: an in vitro and in vivo studies. *Arabian Journal for Science and Engineering* 45 : 1-13
- Surono, I. S. 2004. Probiotik susu fermentasi dan kesehatan. Tri Cipta Karya. Jakarta.
- Suryono, T., & M. Badjoeri. 2013. Kualitas air pada uji pembesaran larva ikan sidat (*Anguilla* spp.) dengan sistem pemeliharaan yang berbeda. *LIMNOTEK* 20 (2) : 169-177.
- Syahputra, K., I. Rusmana, & U. Widyastuti. 2011. Isolasi dan karakterisasi bakteri denitrifikasi sebagai agen bioremediasi nitrogen anorganik. *Jurnal Riset Akuakultur* 6(2) : 197-209.
- Thairu, Y., I. Abdullahi, & Y. Usman. 2016. Laboratory perspective of gram staining and its significance in investigations of infectious disease. *Sub-Saharan African Journal of Medicine* 4 (1) : 168-174.
- US Environmental Protection Agency. 2002. Nitrification. Pennsylvania Ave. Washington DC.
- Verstraete, W. & S. Philips. 1998. Nitrification-denitrification processes and technologies in new contexts. Laboratory of Microbial Ecology, University of Gent. Belgium
- Wahyuningsih, S., & A. Gitarama. 2020. Amonia pada sistem budidaya ikan. *Jurnal Ilmiah Indonesia* 5 (2): 112-125.
- Watson, S.W., F.W. Valos, & J.B. Waterbury. 1981. The family nitrobacteraceae in the prokaryotes. Springer-Verlag. Berlin.
- Wijaya, O., B. Raharjo, & Prayogo. 2014. Pengaruh padat tebar ikan lele terhadap laju pertumbuhan dan survival rate pada sistem akuaponik. *Jurnal Ilmiah Perikanan dan Kelautan* 6 (1) : 1-12.
- Wilkie, M. P. 1997. Mechanism of ammonia excretion across fish gills. *Comp. Biochem. Physiol.* 118A. 39–50.

- Yamamoto, S., & S. Harayama. 1998. Phylogenetic relationships of *Pseudomonas putida* strains deduced from the nucleotide sequences of gyrB, rpoD and 16s rRNA genes. *Int.J. Syst Bacteriol* 48: 813–819.
- Yosmaniar, H. Novita, & E. Setiadi. Isolasi dan karakterisasi bakteri nitrifikasi dan denitrifikasi sebagai kandidat probiotik. *Jurnal Riset Akuakultur* 12 (4) : 369-378.
- Yuhana, M. 2010. Agen biokontrol dalam akuakultur: produksi dan aplikasinya. *Jurnal Akuakultur Indonesia* 9 (1) : 16–20.