DAFTAR PUSTAKA

Aly, S. M., N. I. Elbanna, M. A. Elatta, M. Hegazy, and M. Fathi. 2023. Prevalence, molecular typing, antibiogram and histopathological changes of *Vibrio harveyi* and *Vibrio parahaemolyticus* isolated from gilthead sea bream (*Sparus aurata*). Aquaculture and Fisheries.

Amalina, N. Z., S. Santha, D. Zulperi, M. N. A. Amal, M. T. Yusof, M. Zamri-Saad, and Md. Y. Ina-Salwany. 2019. Prevalence, antimicrobial susceptibility and plasmid profiling of *Vibrio* spp. isolated from cultured groupers in Peninsular Malaysia. BMC Microbiology. 19:251.

Araujo, F. G., I. D. Gomes, A. A. D. Nascimento, M. A. J. D. Santos, and A. Sales. 2019. Histopathological analysis of liver of the catfish *Pimelodus maculatus* in a tropical eutrophic reservoir from Southeastern Brazil. Biological Sciences. 41.

Aswiyanti, I., I. Istiqomah, and A. Isnansetyo. 2021. Isolation and identification of nitrifying bacteria from tilapia (*Oreochromis* sp.) pond in Sleman Yogyakarta Indonesia. IOP Conference Series: Earth and Environmental Science. 919(1):1-13.

Atmanto, Y. K. A. A., K. Paramita, and I. Handayani. 2022. Culture media. International Research Journal of Modernization in Engineering Technology and Science. 4(4): 2213-2225.

Avrilia, D., H. Suprapto, and B. S. Rahardja. 2022. Evaluation of histopathological changes in cantang grouper brain and gill infected with *Streptococcus iniae*. World Veterinary Journal. 12(1):87-94.

Azis, Y., Subandiyono dan Suminto. 2021. Pengaruh frekuensi pemberian pakan terhadap pertumbuhan dan kelulushidupan benih kerapu cantang (*Epinephelus fuscoguttatus* × *Epinephelus lanceolatus*) berbasis *at satiation*. Jurnal Sains Akuakultur Tropis. 5(1):51-60.

Bai, J. Y., H. Long, J. Cui, X. Zhang, X. N. Cai, and Z. Y. Xie. 2020. Characterization of a pathogenic *Vibrio harveyi* strain from diseased *Epinephelus coioides* and evaluation of different methods to control its infection. Aquaculture. 526.

Chimetto, L. A., I. Cleenwerck, N. Alves, B. S. Silva, M. Brocchi, A. Willems, P. D. Vos, and F. L. Thompson. 2011. *Vibrio communis* sp. nov., isolated from the marine animals *Mussismilia hispida, Phyllogorgia dilatate, Palythoa caribaeorum, Palythoa variabilis* and *Litopenaeus vannamei*. International Journal of Systematic and Evolutionary Microbiology. 61(2):362-368.

Chimetto, L. A., M. Brocchi, M. Gondo, C. C. Thompson, B. Gomez-Gill, and F. L. Thompson. 2008. Genomic diversity of vibrios associated with Brazilian coral *Mussismilia hispida* and its sympatric zoanthids (*Palythoa caribaeorum, Palythoa variabilis,* and *Zoanthus solanderi*). Journal of Applied Microbiology.106:1818-1826.

Cho, H. J., D. Y. Choi, J. H. Lee, J. H. Kim, and Y. J. Kang. 2023. First report and pathogenicity of *Vibrio campbellii* (VCAHPND) isolated in South Korea.

Dahlia, H. Suprapto, dan R. Kusdarwati. 2017. Isolasi dan identifikasi bakteri pada benih ikan kerapu cantang (*Epinephelus* sp.) dari kolam pendederan Balai Perikanan Budidaya Air Payau (BPBAP) Situbondo, Jawa Timur. Journal of Aquaculture and Fish Health. 6(2):57-66.

Deng, Y., L. Xu, H. Chen, S. Liu, Z. Guo, C. Cheng, H. Ma, and J. Feng. 2020. Prevalence, virulence genes, and antimicrobial resistance of *Vibrio* species isolated from diseased marine fish in South Cina. Scientific Reports. 10:14329.

Estante-Superio, E. G., R. V. Pakingking, V. L. Corre, and E. R. Cruz-Lacierda. 2021. *Vibrio harveyi*-like bacteria associated with fin root in farmed milkfish *Chanos chanos* (Forsskal) fingerlings in the Philippines. Aquaculture. 534.

Firmino, J., M. D. Furones, K. B. Andree, C. Sarasquete, J. B. Ortiz-Delgado, G. Asencio-Alcudia, and E. Gisbert. 2019. Contrasting outcomes of *Vibrio harveyi* pathogenicity in githhead swabream, *Sparus aurata* and European seabass, *Dicentrachus labrax*. Aquaculture. 511:734210.

Hanson, A. 2008. Oxidative-Fermentative Test Protocol. American Society for Microbiology.

Harikrishnan, R., C. Balasundaram, and M. S. Heo. 2011. Fish health aspect in grouper aquaculture. Aquaculture. 320:1-21.

Hastari, I. F., R. Kurnia dan M. M. Kamal. 2017. Analisis kesesuaian budidaya KJA ikan kerapu menggunakan SIG di Perairan Ringgung Lampung. Jurnal Ilmu dan Teknologi Kelautan Tropis. 9(1):151-159.

He, L., L. Zhao, Q. Li, L. Huang, Y. Qin, Z. Zhuang, X. Wang, H. Huang, J. Zhang and Q. Yan. 2023. *Pseudomonas plecoglossicida* fliP gene affects the immune response of *Epinephelus fuscoguttatus* ♀ × *Epinephelus lanceolatus* ♂ to infection. Fish and Shellfish Immunology. 140.

Hernandez-Cabanyero, C and C. Amaro. 2020. Phylogeny and life cycle of the zoonotic pathogen *Vibrio vulnificus.* Environmental Microbiology. 22(10):4133-4148.

Hirai, J., D. Sakanashi, M. Hagihara, S. Haranaga, K. Uechi, H. Kato, H. Hamada, N. Nishiyama, Y. Koizumi, H. Suematsu, Y. Yamagishi, J. Fujita, and H. Mikamo. 2016. Bacteremia due to *Streptococcus tigurinus*: a case report and literature review. Journal of Infection and Chemotherapy. 22:762-766.

Huang, H. Y., Y. C. Chen, P. C. Wang. M. A. Tsai. S. C. Yeh. H. J. Liang and S. C. Chen. 2014. Efficacy of a formalin-inactivated vaccine against *Streptococcus iniae* infection in the farmed grouper *Epinephelus coioides* by intraperitoneal immunization. Vaccine. 32:7014-7020.

Huang, L., W. Qi, Y. Zuo, S. A. Alias and W. Xu. 2020. The immune response of a warm water fish orange-spotted grouper (*Epinephelus coioides*) infected with a typical cold water bacterial pathogen *Aeromonas salmonicida* is AhR dependent. Development and Comparative Immunology. 113.

Ismi, S. 2019. Upaya pemanfaatan benih ikan kerapu cantang yang mempunyai bentuk abnormal (cacat) untuk kebutuhan budidaya. Seminar Nasional Kelautan XIV.

Istiqomah, I., A. Isnansetyo, Murwantoko, D. P. Handayani, Y. N. Lestari, A. Taslihan, I. G. N. Permana and E. Wijayanti. 2023. Antibiotic resistance of emerging pathogenic bacteria of hybrid grouper farming in Indonesia. Biodiversitas. 24(5):2493-2501.

Istiqomah, I., Sukardi, Murwantoko and A. Isnansetyo. 2020. Review: Vibriosis management in Indonesian Marine Fish Farming. 3rd ISMFR. 147:01001.

ITIS. 2023. *Aeromonas salmonicida* (Lehmann and Neumann, 1896). https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=81#null. Diakses 5 Desember 2023.

ITIS. 2024. *Epinephelus* (Bloch, 1793). *https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=167694#null*. Diakses 21 Juli 2024

ITIS. 2023. *Pseudomonas plecoglossicida* (Nishimori *et al*., 2000). https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=965205#null. Diakses 5 Desember 2023.

ITIS. 2023. *Streptococcus iniae* (Pier and Madin, 1976). https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=966478#null. Diakses 5 Desember 2023.

ITIS. 2024. *Vibrio* (Pacini, 1954). https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=84#null. Diakses 6 Juni 2024.

Jum, L. I. and N. Y. S. Woo. 2003. Pathogenicity of vibriosis in fish: an overview. Journal of Ocean University of Qiandao. 2(2):117-128.

Kang, C. H., Y. Kim, S. J. Oh, J. S. Mok, M. H. Cho, and J. S. So. 2014. Antibiotic resistance of *Vibrio harveyi* isolated from seawater in Korea. Marine Pollution Bulletin. 86:261-265.

Kim, D. H., S. Y. Choi, C. S. Kim, M. J. Oh, and H. D. Jeong. 2013. Low-value fish used as feed in aquaculture were a source of furunculosis caused by atypical *Aeromonas salmonicida*. Aquaculture. 408:113-117.

Kumar, S., C. B. Kumar, V. Rajendran, N. Abishaw, P. S. S. Anand, S. Kannapan, V. K. Nagaleekar, K. K. Vijayan, and S. V. Alavandi. 2021. Delineating virulence of

Vibrio campbellii: a predominant luminescent bacterial pathogen in Indian Shrimp hatcheries. Scientific Report. 11:1583.

Li, H., L. Li, Y. Chi, Q. Tian, T. Zhou, C. Han, Y. Zhu, and Y. Zhou. 2020. Development of a standardized Gram stain procedure for bacteria and inflammatory cells using an automated staining instrument. Microbiology Open. 9(9):1099.

Liu, R., Z. Lian, X. Hu, A. Liu, J. Sun, C. Chen, X. Liu, Y. Song, and Y. Yiksung. 2019. First report of *Vibrio vulnificus* in grass carp *Ctenopharyngodon idellus* in China. Aquaculture. 499:283-289.

Loka, J., P. Janakiram, and M. Rokkam. 2006. Characterization of *Vibrio* spp. associated with diseased shrimp from culture ponds of Andhra Pradesh (India). Journal of The World Aquaculture Society. 37(4):523-532.

Long, S., Z. Li, X. Dong, and X. Yan. 2021. The effect of oxidized fish oil on the spleen index, antioxidant activity, histology and transcriptome in juvenile hybrid grouper (♀ *Epinephelus fuscoguttatus* × ♂ *Epinephelus lanceolatus*). Frontiers in Marine Science. 8:779305.

Mahon, C. R., D. C. Lehman, and G. Manuselis. 2011. Textbook of Diagnostic Microbiology. 4th ed. Saunders Elsevier. USA.

Manchanayake, T., A. Salleh, M. N. A. Amal, I. S. M. Yasin, and M. Zamri-Saad. 2023. Pathology and pathogenesis of *Vibrio* infection in fish: a review. Aquaculture Reports. 28.

Mariskha, P. R. dan N. Abdulgani. 2012. Aspek reproduksi ikan kerapu macan *(Epinephelus fuscoguttatus*) di Perairan Glondong Gede Tuban. Jurnal Sains dan Seni ITS. 1(1).

McDevitt, S. 2009. Methyl red and voges-proskauer test protocols. American Society for Microbiology.

Mirbakhsh, M., A. A. Sepahy, M. Afsharnasab, A. Khanafari, and M. R. Razavi. 2014. Molecular identification of *Vibrio harveyi* from larval stage of pacific white shrimp *Litopenaeus vannamei*) Boone (crustacea:decapoda) by polymerase chain reaction and 16s rDNA sequencing. Iranian Journal of Fisheries Sciences. 13(2):384-393.

Mohamad, N., M. N. A. Amal, I. S. M. Yasin, M. Z. Saad, N. S. Nasruddin, N. Al-saari, S. Mino, and T. Sawabe. 2019. Vibriosis in cultured marine fishes: a review. Aquaculture. 512.

Moreira, M., D. Schrama, A. P. Farinha, M. Cerqueira, C. R. D. Magalhaes, R. Carrilho, and P. Rodrigues. 2021. Fish pathology research and diagnosis in aquaculture of farmed fish: a proteomics perspective. Animals. 11(125):1-25.

Musyarifah, Z. dan S. Agus. 2018. Proses fiksasi pada pemeriksaan histopatologi. Jurnal Kesehatan Andalas. 7(3):443-453.

Nisa, M., G. Mahasri, and L. Suknartiwi. Gill and skin pathology of hybrid grouper (*Epinephelus fuscoguttatus x Epinephelus lanceolatus*) infested *Zeylanicobdella arugamensis* worms in different infestations degree. IOP Conference Series: Earth and Environmental Science 679 012006.

Novriadi, R., S. Agustatik, Hendrianto, Pramuanggit, dan A. H. Wibowo. 2014. Balai Perikanan Budidaya Laut Batam. Direktorat Jenderal Perikanan Budidaya Kementerian Kelautan dan Perikanan.

Pratiwi, H.C. dan A. Manan. 2015. Teknik dasar histologi pada ikan gurami (*Osphronemus gourami*). Jurnal Ilmiah Perikanan dan Kelautan. 7(2):152-158.

Pretto, T. 2020. *Vibrio harveyi* group: diagnostic manual for the main pathogens in European seabass and gilthead seabream aquaculture. Zaragoza: CIHEAM. 75-82.

Putra, W. K. A., S. Suhaili, dan T. Yulianto. 2020. Efisiensi dan rasio konversi pakan ikan dengan berbagai dosis papain pada kerapu cantang (*Epinephelus fuscoguttatus x Epinephelus lanceolatus*). Jurnal Perikanan Universitas Gadjah Mada. 22(1):19-26.

Rahayu, A. P. 2017. Daya dukung lahan tambak budidaya ikan kerapu (*Epinephelus* spp.) di Kecamatan Brondong Kabupaten Lamongan. Jurnal Grouper. 8(1):13-19.

Raj, S. T., A. P. Lipton, and G. S. Chauhan. 2010. Characterization and infectivity evaluation of *Vibrio harveyi* causing white patch disease among captive reared seahorses, *Hippocampus kuda.* Indian Journal of Marine Sciences. 39(1):151-156.

Raj, S. Thambi and A. P. Lipton. 2008. Isolation and characterization of *Vibrio harveyi* causing blackening disease among captive reared seahorses, *Hippocampus kuda*. Journal of Scientific Transaction in Environment and Technovation. 2(2).

Reiner, K. 2010. Catalase Test Protocol. American Society for Microbiology.

Rochmad, A. N. dan A. T. Mukti. 2020. Teknik pembesaran ikan kerapu hibrida cantang (*Epinephelus fuscoguttatus x Epinephelus lanceolatus*) pada karamba jaring apung. Jurnal Biosains Pascasarjana. 22(1):29-36.

Rumondang, D. A. Ningsih, I. Sari, P. Sari. 2022. Penyakit pada Ikan. Eureka Media Aksara. Jawa Tengah.

Sambrook, J. and D. W. Russell. 2001. Molecular Cloning a Laboratory Manual. 3rd ed. Cold Spring Harbor Laboratory Press. New York.

Samsing, F., W. Zhang, R. N. Zadoks, R. Whittington, C. Venteruni, C. Giles, J. Carson, and J. A. Becker. 2023. Cold temperature stress and damaged skin induced high mortality in barramundi (*Lates calcarifer*) challenged with *Vibrio harveyi.* Journal of Fish Diseases. 46(7):751-766.

Santos, D. M. S., M. R. S. Melo, D. C. S. Mendes, L. K. B. S. Rocha, J. P. L. Silva, S. M. Cantanhede, and P. C. Meletti. 2014. Histological changes in gills of two fish species as indicators of water quality in Jansen Lagoon (Sao Luis, Maranhao State, Brazil). International Journal of Environmental Research and Public Health. 11(12):12927-12937.

Sarjito, S. B. Prayitno, O. K. Radjasa, dan S. Hutabarat. 2007. Karakterisasi dan patogenisitas agensia penyebab vibriosis pada kerapu macan (*Epinephelus fuscoguttatus*) dari Karimunjawa. Aquacultura Indonesiana. 8(2):89-95.

Segre, J. A. 2013. What does it take to satisfy Koch's postulates two centuries later? Microbial genomics and *Propionibacteria acnes.* Journal of Investigative Dermatology. 133(9):2141-2142.

Shen, G. M., C. Y. Shi, C. Fan, D. Jia, S. Q. Wang, G. S. Xie, G. Y. Li, Z. L. Mo and J. Huang. Isolation, identification and pathogenicity of *Vibrio harveyi*, the causal agent of skin ulcer disease in juvenile hybrid groupers *Epinephelus fuscoguttatus* x *Epinephelus lanceolatus*. Journal of Fish Disease.

Shields, P. and L. Cathcart. 2010. Oxidase Test Protocol. American Society for Microbiology.

Shinoda, S. and S. I. Miyoshi. 2011.Proteases produced by vibrios. Biocontrol Science. 16(1):1-11.

Soto-Rodriguez. S. A., B. Gomez-Gil, R. Lozano, R. D. Rio-Rodriguez, A. L. Dieguez, and J. L. Romalde. 2012. Virulence of *Vibrio harveyi* responsible for the "bright-red" syndrome in the Pacific white shrimp *Litopenaeus vannamei.* Journal of Invertebrate Pathology. 109:307-317.

Suji, A., P. Jana, M. Arumugam, S. Raj, and S. Thirukumar. 2021. Extraction, characterization and antimicrobial activity (in vitro) of chitosan from shell waste of the Indian white shrimp-A profitable way for aquaculture and processing industry. 34(3):38-51.

Sun, B., X. H. Zhang, X. Tang, S. Wang, Y. Zhong, J, Chen, and B. Austin. 2007. A single residu change in *Vibrio harveyi* hemolysin results in the loss of phospholipase and hemolytic activities and pathogenicity for turbot (*Scopthalmus maximus*). Journal of Bacteriology. 189(6):2575-2579.

Sun, Y., Z. Zhu, S. Wheng, J. He, and C. Dong. 2020. Characterization of a highly lethal barramundi (*Lates calcarifer*) model of *Pseudomonas plecoglossida* infection. Microbial Pathogenesis. 149:104516.

Thillaichidambaram, M., K. Narayanan, S. Selvaraj, S. Sundararaju, R. C. Muthiah, and M. J. Figge. 2022. Isolation and characterization of *Vibrio owensii* from Palk Bay and its infection study against post larvae of *Litopenaeus vannamei*. Microbial Pathogenesis. 172.

Trejo-Ramos, D. A., J. Caceres-Marlinez, S. Sanches-serrano, R. Vasquez-Yeomans, and R. Cruz-Flores. 2022. Histopathology of cultured juvenile *Totoaba macdonaldi* associated with bacterial isolates molecularly identified as *Vibrio* spp. during a temperature increase event. AquaTechnica. 4(3):150-160.

Tukan, O. B., Y. Salosso, dan A. Djonu. 2023. Pencegahan infeksi bakteri *Vibrio alginolyticus* pada ikan kerapu cantang (*Epinephelus* sp.) menggunakan rebusan daun Kersen (*Muntingia calabura*). Jurnal Perikanan. 13(3):634-646.

Ushijima, B., A. Smith, G. S. Aeby, and S. M. Callahan. 2012. *Vibrio owensii* induces the tissue loss disease montipora white syndrome in the Hawaiian reef coral *Montipora capitata*. PLOS ONE. 7(10).

Xu, H., N. Zhu, Y. Chen, H. Yue, M. Zhuo, E. Wangkahart, Q. Liang, and R. Wang. 2024. Pathogenicity of *Streptococcus iniae* causing mass mortalities of yellow catfish (*Tachysurus fulvidraco*) and its induced host immune respons. Frontiers in Microbiology. 15:1374688.

Yaashikaa, P. R., A. Saravanan, and P. S. Kumar. 2016. Isolation and identification of *Vibrio cholerae* and *Vibrio parahaemolyticus* from prawn (*Penaeus monodon*) seafood: preservation strategies. Microbial Pathogenesis. 99:5-13.

Yanez, M. A., V. Catalan, D. Apraiz, M. J. Figueras and A. J. Martinez-Murcia. 2003. Phylogenetic analysis of members of the genus *Aeromonas* based on *gyrB* gene sequences. International Journal of Systematics and Evolutionary Microbiology. 53: 875-883.

Yu, P., H. Shan, Y. Sheng, J. Ma, K. Wang, and H. Li. 2022. Translucent disease outbreak in *Penaeus vannamei* post-larva accompanies the imbalance of pond water and shrimp gut microbiota homeostasis. Aquaculture Reports. 27:101410.

Zhang, X. H., and B. Austin. 2000. Pathogenicity of *Vibrio harveyi* to salmonids. Journal of Fish Disease. 23:93-102.

Zhang, X. H., X. He, and B. Austin. 2020. *Vibrio harveyi:* a serious pathogen of fish and invertebrates in mariculture. Marine Life Science and Technology. 2:231-245.

Zhao, X., Y. Guo, J. He, J. Liu and S. Ye. 2021. Gastrodin relieves *Vibrio harveyi* infection by blocking hemolysin active centers. Aquaculture. 544:737056.

Zhu, Z. M., C. F. Dong, S. P. Wheng and J. G. He. 2017. The high prevalence of pathogenic *Vibrio harveyi* with multiple antibiotic resistance in scale drop and muscle necrosis disease of the hybrid grouper, *Epinephelus fuscoguttatus* (♀) × *Epinephelus lanceolatus* (♂), in China. Journal of Fish Disease. 1-13.

Zhu, Z., C. Duan, C. Dong, S. Weng, and J. He. 2020. Epidemiological situation and phylogenetic relationship of *Vibrio harveyi* in marine-cultured fishes in China and Shouteast Asia. Aquaculture. 529:735652.

Zupicic, I. G., D. Oraic, K. Krizanovic, and S. Zrncic. 2024. Whole genome sequencing of *Vibrio harveyi* from different sites in the Mediterranean Sea providing data on virulence and antimicrobial resistance genes. Aquaculture. 581:740439.