

DAFTAR PUSTAKA

- Abd-Elnaby, H., G. Abo-Elaa, U. Abdel-Raouf, A. Abd-Elwahab & M. Hamed. 2015. Antibacterial & anticancer activity of marine *Streptomyces parvus*: optimization & application. *Journal Biotechnology & Biotechnological Equipment*. 30 : 180 – 191.
- Alqurashi, A. 2016. Identification & characterization of endophytic actinobacteria isolated from plants & sponges. Thesis. Flinders University.
- Anandan, R., D. Dharumadurai & G. P. Manogaran. 2016. Actinobacteria – Basics & biotechnology applications. InTech Publisher.
- Anggraini, S. P., A. D. Sasanti & M. Wijayanti. 2017. Pencegah infeksi *Aeromonas hydrophila* pada ikan patin (*Pangasius* sp.) menggunakan tepung paci-paci (*Leucas lavandulaefolia*) dengan dosis yang berbeda. *Jurnal Akuakultur Rawa Indonesia*. 5 (1) : 109 – 119.
- Aravena-Roman, M., T. J. J. Inglis, B. Henderson, T. V. Riley & B. J. Chang. 2012. Antimicrobial susceptibilities of *Aeromonas* strains isolated from clinical & environmental sources to 26 antimicrobial agents. *Antimicrobial Agents Chemotherapy*. 56 (2) : 1110 - 1112
- Arief, M., N. Fitriani & S. Subekti. 2014. Pengaruh pemberian probiotik berbeda pada pakan komersial terhadap pertumbuhan & efisiensi pakan ikan lele Sangkuriang (*Clarias* sp.). *Jurnal Ilmiah Perikanan & Kelautan*. 6 (1) : 49 – 53.
- Asolkar, R. N., T. N. Kirkland, P. R. Jensen & W. Fenical. 2010. Arenimycin, an antibiotic effective against rifampin- & methicillin-resistant *Staphylococcus aureus* from the marine actinomycete *Salinispora arenicola*. *Journal Antibiotics*. 63 (1) : 37 – 39.
- Baehaki, A., T. Nurhayati & M. T. Suhartono. 2004. Karakterisasi protease dari bakteri *Aeromonas hydrophila*. *Bulletin Teknologi Hasil Perikanan*. 8 (2) : 65 – 79.
- Barakat, K. M. & E. A. Beltagy. 2015. Bioactive phthalate from marine *Streptomyces ruber* EKH2 against virulent fish pathogens. *The Egyptian Journal of Aquatic Research*. 41 (1) : 49 – 56.
- Baral, B., A. Akhgari & M. Metsa-Ketela. 2018. Activation of microbial secondary metabolic pathways: avenues and challenges. *Synthetic Systems Biotechnology*. 3 (3) : 163 – 178.
- Barka, E. A., P. Vatsa, L. Sanchez, N. G. Vaillant, H. P. Klenk, C. Clement, Y. Ouhdouch & G. P. van Wezel. 2016. Taxonomy, physiology & natural products of Actinobacteria. *Microbiology & Molecular Biology Reviews*. 80 (1) : 1 – 43.
- Betrand, S., N. Bohni, S. Shnee, O. Schumpp, K. Gindro & J. L. Wolfender. 2014. Metabolite induction via microorganism co-culture: a potential way to enhance chemical diversity drug discovery (Abstract). *Biotechnology Advances*. 32 (6) : 1180 – 1204.
- Bode, H. B., B. Bethe, R. Hofs & A. Zeeck. 2002. Big effects from small changes: possible ways to explore nature's chemical diversity. *Biological Chemistry*. 3 : 619 – 627.
- Brana, A. F., H. P. Fiedler, H. Nava, V. Gonzales, A. S. Vizcaino, A. Molina, J. L. Acuna, L. A. Garcia & G. Blanco. 2015. Two *Streptomyces* species producing antibiotic, antitumor, & anti-inflamamatory compounds are widespread among intertidal macroalgae & deep-sea coral reef invertebrates from the Central Cantabrian Sea (Abstract). *Microbial Ecology*. 69 (3) : 512 – 524.

- Brana, A. F., A. S. Vizcaino, I. P. Victoria, J. Martin, L. Otero, J. J. P. Gitierrez, J. Fernandez, Y. Mohamedi, T. Fontanil, M. Salmon, S. Cal, F. Reyes, L. A. Garcia & G. Blanco. 2019. Desertomycin G, a new antibiotic with activity against *Mycobacterium tuberculosis* & human breast tumor cell lines produced by *Streptomyces althoticus* MSM3, isolated from the Cantabrian Sea intertidal macroalgae *Ulva* sp. *Marine Drugs*. 17 (2) : 1 – 10.
- Chopra, A. K., X. J. Xu, D. Ribardo, M. Gonzalez, K. Kuhl, J. W. Peterson & C. W. Houston. 2000. The cytotoxic enterotoxin of *Aeromonas hydrophila* induces proinflammatory cytokine production & activates arachidonic acid metabolism in macrophages. *Infection & Immunity*. 68 (5) : 2808 – 2818.
- Das, R., W. Romi, R. Das, H. K. Sharma & D. Thakur. 2018. Antimicrobial potentiality isolated from two microbiologically unexplored forest ecosystems of Northeast India. *Biological Medicine Central Microbiology*. 18 (71) : 1 – 16.
- Das, S., L. R. Ward & C. Burke. 2008. Prospects of using marine actinobacteria as probiotics in aquaculture (Abstract). *Applied Microbiology & Biotechnology*. 81 (3) : 419 – 429.
- Dharmaraj, S. 2010. Antagonistic potential of marine Actinobacteria against fish & shellfish pathogens. *Turkish Journal of Biology*. 35 (5) : 303 – 311.
- Fidyandini, H. P., M. Yuhana & A. M. Lusiastuti. 2016. Pemberian probiotik multispecies dalam media budidaya ikan lele dumbo untuk mencegah penyakit *motile aeromonads septicemia*. *Jurnal Veteriner*. 17 (3) : 440 – 448.
- Fauziah, P. N., J. Nurhajati & Chrysanti. 2014. Daya antibakteri filtrat asam laktat & bakteriosin *Lactobacillus bulgaricus* KS1 dalam menghambat pertumbuhan *Klebsiella pneumoniae* strain ATCC 700603, CT1538 & S941. *Majalah Kedokteran Bandung*. 47 (1) : 35 – 41.
- Girao, M., I. Riberio, T. Riberio, I. C. Azevedo, F. Pereira, R. Urbatzka, P. N. Leao & M. F. Carvalho. 2019. Actinobacteria isolated from *Laminaria ochroleuca*: a source of new bioactive compounds. *Frontiers in Microbiology*. doi: 10.3389/fmicb.2019.00683.
- Haditomo, A. H. C., A. M. Lusiastuti & Widanarni. 2016. Studi *Bacillus firmus* sebagai kandidat probiotik dalam menghadapi *Aeromonas hydrophila* pada media budidaya. *Jurnal Saintek Perikanan*. 11 (2) : 111 – 114.
- Haditomo, A. H. C., Widanarni & A. M. Lusiastuti. 2014. Perkembangan *Aeromonas hydrophila* pada berbagai media kultur. *Prosiding Seminar Nasional Tahunan ke-III Hasil-hasil Penelitian Perikanan & Kelautan FPIK Universitas Diponegoro*. 357 – 364.
- Haryani, A., A. Grandiosa, I. D. Buwono & A. Santika. 2012. Uji efektifitas daun pepaya (*Carica papaya*) untuk pengobatan infeksi bakteri *A. hydrophila* pada ikan mas koki (*Carassius auratus*). *Jurnal Perikanan & Kelautan*. 3 (3) : 213 – 220.
- Hoque, F. 2014. Biocontrol of β -haemolytic *Aeromonas hydrophila* infection in *Labeo rohita* using antagonistic bacterium *Pseudomonas aeruginosa* FARP72. *International Journal of Pharmaceutical Sciences & Researches*. 5 (2) : 490 – 501.
- Irianto, A. & B. Austin. 2000. Use of dead probiotic cells to control furunculosis in rainbow trout, *Oncorhynchus mykiss* (Walbaum). *Journal of Fish Diseases*. 26 (1) : 59 – 62.
- Isnansetyo, A. 2005. Bakteri antagonis sebagai probiotik untuk pengendalian hayati pada akuakultur. *Jurnal Perikanan*. 7 (1) : 1 – 10.

- Isnansetyo, A., Muhtadi, I. Istiqomah, K. H. Nitimulyo & Triyanto. 2011. Selective media for *in vitro* activity evaluation of bacterial biocontrol against pathogenic *Vibrio*. *Journal of Biosciences*. 18 (3) : 129 – 134.
- Istikhanah., Sarjito & S. B. Prayitno. 2014. Pengaruh pencelupan ekstrak daun sirih temurose (*Piper betle* Linn) terhadap mortalitas & histopathologi ginjal ikan mas (*Cyprinus carpio*) yang diinfeksi bakteri *Aeromonas hydrophila*. *Journal of Aquaculture Management & Technology*. 3 (3) : 51 – 57.
- Kasanah, N. & T. Triyanto. 2019. Bioactivities of halometabolites from Marine Actinobacteria. *Biomolecules*. 9 (6) : 225 – 242.
- Kusdarwati, R., Kismiyati, Sudarno, H. Kurniawan & Y. T. Prayogi. 2017. Isolation & identification of *Aeromonas hydrophila* & *Saprolegnia* sp. on Catfish (*Clarias gariepinus*) in floating cages in Bozem Moro Krembangan Surabaya. *IOP Conference Series: Earth Environmental Science*. 55 12038.
- Lam, K. S. 2006. Discovery of novel metabolites from marine actinomycetes. *Current Opinion in Microbiology (Abstract)*. 9 (3) : 245 – 251.
- Li, J., J. Koh, S. Liu, R. Lakshminarayanan, C. S. Verma & R. W. Beuerman. 2017. Membrane active antimicrobial peptides: translating mechanistic insights to design. *Frontiers in Neuroscience*. 11 (73) : 1 – 18.
- Manivasagan, P., J. Vankatesan, K. Silvakumar & S. K. Kim. 2013. Marine actinobacterial metabolites: current status & future prespectives. *Microbiology Research*. 168 : 311 – 332.
- Marmann, A., A. H. Aly, W. Lin, B. Wang & P. Proksch. 2014. Co-cultivation – a powerful emerging tool for enhancing chemical diversity of microorganisms. *Marine Drugs*. 12 (2) : 1043 – 1065.
- Muslikha, S. Pujiyanto, S. N. Jannah & H. Novita. 2016. Isolasi, karakterisasi *Aeromonas hydrophila* & deteksi gen penyebab penyakit *Motile Aeromonas Septicemia* (MAS) dengan 16s rRNA & *Aerolysin* pada ikan lele (*Clarias* sp.). *Jurnal Biologi*. 5 (4) : 1 - 7.
- Nabila, M. I. & K. Kannabiran. 2018. Antagonistic activity of terrestrial *Streptomyces* sp. VITNK9 against Gram negative bacterial pathogens affecting the fish & shellfish in aquaculture. *Journal of Marine Biology & Oceanography*. 53 (2) : 171 – 183.
- Nahar, S., M. M. Rahman, G. U. Ahmed & M. A. R. Faruk. 2016. Isolation, identification & characterization of *Aeromonas hydrophila* from juvenile farmed pangasius (*Pangasianodon hypophthalmus*). *International Journal of Fisheries & Aquatic Studies*. 4 (4) : 52 – 60.
- Nawawi. 2013. Penggunaan sistem bioremediasi pada media budidaya ikan siat (*Anguilla* sp.). *Jurnal Galung Tropika*. 2 (2) : 116 – 122.
- Nguyen, C. X., T. T. Dinh & H. T. Nguyen. 2018. Characterization & identification of a *Streptomyces* strain with biocontrol activity against *Aeromonas hydrophila* causing haemorrhage disease in fish (Abstract). *Vietnam Journal of Agricultural Sciences*. 1 (1) : 52 – 59.
- Nithyanand, P., S. Manju & S. K. Pandian. 2010. Phylogenetic characterization of culturable actinomycetes associated with the mucus of the coral *Arcopora digitifera* from Gulf of Mannar. *Federation of European Micribiological Societies Microbiology Letter*. 314 : 112 – 118.

- Nour, E. & E. N. A. El-Ghiet. 2011. Efficacy of *Pseudomonas fluorescens* as biological control agent against *Aeromonas hydrophila* infection in *Oreochromis niloticus*. World Journal of Fish and Marine Sciences. 3 (6) : 564 – 569.
- Onaka, H., Y. Mori, Y. Igarashi & T. Furumai. 2011. Mycolic acid-containing bacteria induce natural-product biosynthesis in *Streptomyces* species (Abstract). Applied Environmental Microbiology. 77 (2) : 400 – 406.
- Patrauchan, M. A. & P. J. Oriel. 2003. Degradation of benzyldimethylalkylammonium chloride by *Aeromonas hydrophila* sp. K. Journal of Applied Microbiology. 94 (2) : 266 – 272.
- Pettit, R. K. 2009. Mixed fermentation for natural product drug discovery. Applied Microbiology & Biotechnology. 83 : 19 – 25.
- Pianetti, A., F. Bruscolini, M. B. Rocchi, L. Sabatini & B. Citterio. 2006. Influence of different concentrations of nitrogen & phosphorous on *Aeromonas* spp. growth (Abstract). Igiene e Sanita Pubblica. 62 (6) : 609 – 622.
- Purnama, A. A. & E. M. Brahmana. 2018. Bioaktivitas antibakteri lamun *Thalassia hemprichii* & *Enhalus acoroides*. Jurnal Biologi Universitas Andalas. 6 (1) : 45 – 50.
- Purnamasari, L., A. D. Sasanti & Yulisman. 2015. Perendaman ikan lele sangkuriang (*Clarias* sp.) dalam sari buah belimbing wuluh untuk mengobati infeksi *Aeromonas hydrophila*. Jurnal Akuakultur Rawa Indonesia. 3 (1) : 82 – 93.
- Rajivgandhi G., R. Vijayan R, M. Kannan, M. Santhanakrishnan & N. Manoharan. 2016. Molecular characterization & antibacterial effect of endophytic actinomycetes *Nocardiopsis* sp. GRG1 (KT235640) from brown algae against MDR strains of uropathogens. Bioactive Materials. 1 (2) : 140 – 150.
- Rateb, M. E., W. E. Houssen, W. T. A. Harrison, H. Deng, C. K. Okoro, J. A. Asenjo, B. A. Andrews, A.T. Bulls, M. Goodfellow, R. Ebel & M. Jaspars. 2011. Diverse metabolic profiles of a *Streptomyces* strain isolated from a hyper-arid environment (Abstract). Journal Natural Products. 74 (9) : 1965 – 1971.
- Reen, F. J., S. Romano, A. D. W. Dobson & F. O’Gara. 2015. The sound of silence: activating silent biosynthetic gene cluster in marine microorganisms. Marine Drugs. 13 (8) : 4754 – 4783.
- Ritonga, M., D. Suryanto & Y. Djayus. 2017. Jenis-jenis bakteri potensial patogen yang menginfeksi ikan mas (*Cyprinus carpio*) di Kolam Patumbak Kabupaten Deli Serdang. Aquacoastmarine. 15 (1) : 142-151.
- Sarker, S. D., L. Nahar & Y. Kumarasamy. 2007. Microtitre plate-based antibacterial assay incorporating resazurin as an indicator of cell growth & its application in the in vitro antibacterial screening of phytochemicals. Methods. 42 (4). 321 – 324.
- Sha, J., E. V. Kozlova & A. K. Chopra. 2002. Role of various enterotoxins in *Aeromonas hydrophila*-induced gastroenteritis: generation of enterotoxin gene-deficient mutants and evaluation of their enterotoxic activity. Infection & Immunity. 70 (4) : 1924 – 1935.
- Shukla, S. 2016. Secondary metabolites from marine microorganisms & therapeutic efficacy: a mini review. Indian Journal of Geo-Marine Sciences. 45 (10) : 1245 – 1254.
- Singh, A. L. 2013. Nitrate and phosphate contamination in water and possible remedial measures. Environmental Problems and Plant. 44 – 56.

- Sitio, M. H. F., D. Jubaedah & M. Syaifudin. 2017. Kelangsungan hidup & pertumbuhan benih ikan lele (*Clarias* sp.) pada salinitas media yang berbeda. *Jurnal Akuakultur Rawa Indonesia*. 5 (1) : 83 – 96.
- Sukendar, W., Widanarni & M. Setiawati. 2016. Respons imun dan kinerja pertumbuhan ikan lele, *Clarias gariepinus* (Burchell 1822) pada budi daya sistem bioflok dengan sumber karbon berbeda serta diinfeksi *Aeromonas hydrophila*. *Jurnal Iktiologi Indonesia*. 16 (3) : 309 – 323.
- Syahputra, G. 2015. Resazurin si indikator aktivitas sel. *Biotechnology Trends*. 6 (2) : 26 – 28.
- Tambadou, F., I. Lanneluc, S. Sable, G. L. Klein, I. Doghri, V. Sopena, S. Didelot, C. Barthelemy, V. Thiery & R. Chevrot. 2014. Novel nonribosomal peptide synthetase (NRPS) genes sequenced from intertidal mudflat bacteria. *FEMS Microbiology Letters*. 357 (2) : 123 – 130.
- Tan, L. T. H., K. G. Chan, L. H. Lee & B. H. Goh. 2016. *Streptomyces* bacteria as potential probiotics in aquaculture. *Frontiers Microbiology*. 7 (79) : 1 – 8.
- Trang, T. T & N. T. Hai. 2019. Isolation & evaluation of antimicrobial activity of endophytic actinobacteria from horsetail plant (*Equisetum diffusum* D. Don) against bacterial disease in aquatic animals. *Academia Journal of Medical Plants*. 6 (1). DOI: 10.15413/ajmp.2019.0102
- Triyaningsih., Sarjito & S. B. Prayitno. 2014. Patogenisitas *Aeromonas hydrophila* yang diisolasi dari lele dumbo (*Clarias gariepinus*) yang berasal dari Boyolali. *Journal of Aquaculture Management and Technology*. 3 (2) : 11 – 17.
- Ulfah, M., N. Kasanah & N. S. N. Handayani. 2017. Bioactivity & genetic screening of marine actinobacteria associated with red algae *Gelidiella acerosa*. *Indonesian Journal of Biotechnology*. 22 (1) : 13 – 21.
- Uzair, B., F. Menaa, B. A. Khan, F. V. Mohammad, V. U. Ahmad, R. Djeribi & B. Menaa. 2018. Isolation, purification, structural elucidation & antimicrobial activities of kocumarin, a novel antibiotic isolated from actinobacterium *Kocuria marina* CMG S2 associated with the brown seaweed *Pelvetia canaliculata*. *Microbiology Research*. 206 : 186 – 197.
- Verschuere, L., G. Rombaut, P. Sorgeloos & W. Verstraete. 2000. Probiotic bacteria as biological control agents in aquaculture. *Microbiology & Molecular Biology Reviews*. 64 : 655 – 671.
- Vijayakumar, R., G. Vijayanthi, P. Annamalai & N. Thajuddin. 2012. Chapter seven: Actinobacteria, a predominant source of antimicrobial compounds. *Marine Actinobacteria*. 118 – 141.
- Wahjuningrum, D., R. Astrini & M. Setiawati. 2013. Pencegahan *Aeromonas hydrophila* pada benih ikan lele menggunakan bawang putih & meniran. *Jurnal Akuakultur Indonesia*. 12 (1) : 86 – 94.
- Wei, Z. H., H. Wu, L. Bai, Z. Deng & J. J. Zhong. 2012. Temperature shift-induced oxygen species enhanced validamycin A production in fermentation of *Sterptomyces hygroscopicus* 5008 (Abstract). *Bioprocess Biosystems Engineering*. 35 (8) : 1309 – 1316.
- Wiese, J., V. Thiel, K. Nagel, T. Staufenberger & J. F. Imhoff. 2009. Diversity of antibiotic-active bacteria associated with brown alga *Laminaria saccharina* from Baltic Sea. *Marine Biotechnology*. 11 : 287 – 300.
- Yuhana, M. 2010. Agen biokontrol dalam akuakultur: Produksi & aplikasinya. *Jurnal Akuakultur Indonesia*. 9 (1) : 16 – 20.

- Yulinery, T., E. Yulianto & N. Nurhidayat. 2006. Uji fisiologis probiotik *Lactobacillus* sp. Mar 8 yang telah dienkapsulasi dengan menggunakan *spray dryer* untuk menurunkan kolesterol. *Jurnal Biodiversitas*. 7 (2) : 118 – 122.
- Yulvizar, C., I. Dewiyanti & C. N. Defira. 2014. Seleksi bakteri berpotensi probiotik dari ikan mas (*Cyprinus carpio*) indegenous jantho berdasarkan aktivitas antibakteri secara in vitro. *Jurnal Teknologi & Industri Pertanian Indonesia*. 6 (2) : 20 – 24.