

DAFTAR PUSTAKA

- Afrilasari, W., Widanarni, & Meryandini, A. (2016). Effect of Probiotic *Bacillus megaterium* PTB 1.4 on the Population of Intestinal Microflora, Digestive Enzyme Activity and the Growth of Catfish (*Clarias* sp.). *HAYATI Journal of Biosciences*, 23(4), 168–172. <https://doi.org/10.1016/j.hjb.2016.12.005>
- Ahmmmed, F., Ahmmmed, M. K., Shah, M. S., & Banu, G. R. (2018). AGRICULTURE, LIVESTOCK and FISHERIES USE OF INDIGENOUS BENEFICIAL BACTERIA (*Lactobacillus* spp.) AS PROBIOTICS IN SHRIMP (*Penaeus monodon*) AQUACULTURE ARTICLE INFO ABSTRACT. *Res. Agric. Livest. Fish*, 5(1), 127–135. www.agroid-bd.org/ralf,
- Alvanou, M. V., Feidantsis, K., Staikou, A., Apostolidis, A. P., Michaelidis, B., & Giantsis, I. A. (2023). Probiotics, Prebiotics, and Synbiotics Utilization in Crayfish Aquaculture and Factors Affecting Gut Microbiota. *Microorganisms*, 11(5). <https://doi.org/10.3390/microorganisms11051232>
- Ambas I, Fotedar, & N., B. (2015). Survival and Immunity of Marron *Cherax cainii* (Austin, 2002) Fed *Bacillus mycoides* Supplemented Diet under Simulated Transport. *Journal of Aquaculture Research & Development*, 07(01), 4–10. <https://doi.org/10.4172/2155-9546.1000390>
- Amin, M., Rakhisi, Z., & Zarei Ahmady, A. (2015). Isolation and Identification of *Bacillus* Species From Soil and Evaluation of Their Antibacterial Properties . *Avicenna Journal of Clinical Microbiology and Infection*, 2(1), 23233–23233. <https://doi.org/10.17795/ajcmi-23233>
- Amrullah, A., & Wahidah, W. (2019). Immune response and growth performance of crayfish *Cherax quadricarinatus* fed with supplementary diet of synbiotic. *Jurnal Akuakultur Indonesia*, 18(1), 33–45. <https://doi.org/10.19027/jai.18.1.33-45>
- Archacka, M., Białas, W., Dembczyński, R., Olejnik, A., Sip, A., Szymanowska, D., Celińska, E., Jankowski, T., Olejnik, A., & Rogodzińska, M. (2019). Method of preservation and type of protective agent strongly influence probiotic properties of *Lactococcus lactis*: A complete process of probiotic preparation manufacture and use. *Food Chemistry*, 274, 733–742. <https://doi.org/10.1016/j.foodchem.2018.09.033>
- Austin, C. M., & Knott, B. (1996). Systematics of the freshwater crayfish genus *Cherax erichson* (Decapoda: Parastacidae) in south-western Australia: Electrophoretic, morphological and habitat variation. *Australian Journal of Zoology*, 44(3), 223–258. <https://doi.org/10.1071/ZO9960223>
- Bajagai, Y. S., Dart, P. J., & Bryden, W. L. (2016). *Probiotics in Animal Nutrition* (Issue July).
- Bondad-Reantaso, M. G., Subasinghe, R. P., Arthur, J. R., Ogawa, K., Chinabut, S., Adlard, R., Tan, Z., & Shariff, M. (2005). Disease and health management in Asian aquaculture. *Veterinary Parasitology*, 132(3-4 SPEC. ISS.), 249–272. <https://doi.org/10.1016/j.vetpar.2005.07.005>
- Boyd.C.E. and Craig.S.T. (1998). *POND AQUACULTURE WATER QUALITY MANAGEMENT*. KLUWER ACADEMIC PUBLISHERS.
- Butt, U. D., Lin, N., Akhter, N., Siddiqui, T., Li, S., & Wu, B. (2021). Overview of the latest developments in the role of probiotics, prebiotics and synbiotics in shrimp aquaculture. *Fish & Shellfish Immunology*, 114, 263–281.

- <https://doi.org/10.1016/J.FSI.2021.05.003>
- Calcagnile, M., Tredici, S. M., & Alifano, P. (2024). A comprehensive review on probiotics and their use in aquaculture: Biological control, efficacy, and safety through the genomics and wet methods. *Heliyon*, *10*(24), e40892. <https://doi.org/10.1016/j.heliyon.2024.e40892>
- Calvo, N. S., Stumpf, L., Sacristán, H. J., & López Greco, L. S. (2013). Energetic reserves and digestive enzyme activities in juveniles of the red claw crayfish *Cherax quadricarinatus* nearby the point-of-no-return. *Aquaculture*, *416–417*, 85–91. <https://doi.org/10.1016/j.aquaculture.2013.08.017>
- Caulier, S., Nannan, C., Gillis, A., Licciardi, F., Bragard, C., & Mahillon, J. (2019). Overview of the antimicrobial compounds produced by members of the *Bacillus subtilis* group. *Frontiers in Microbiology*, *10*(FEB), 1–19. <https://doi.org/10.3389/fmicb.2019.00302>
- Chen, B., Peng, M., Tong, W., Zhang, Q., & Song, Z. (2020). The Quorum Quenching Bacterium *Bacillus licheniformis* T-1 Protects Zebrafish against *Aeromonas hydrophila* Infection. *Probiotics and Antimicrobial Proteins*, *12*(1), 160–171. <https://doi.org/10.1007/s12602-018-9495-7>
- Chen, D., Wang, S., An, K., Feng, X., Li, Y., & Wang, H. (2024). *Bacillus subtilis* supplementation enhances the growth performance, immune indicators, and stability of the intestinal flora of *Cherax quadricarinatus*. *Aquaculture Reports*, *39*(November), 102488. <https://doi.org/10.1016/j.aqrep.2024.102488>
- Chizhayeva, A., Amangeldi, A., Oleinikova, Y., Alybaeva, A., & Sadanov, A. (2022). Lactic acid bacteria as probiotics in sustainable development of aquaculture. *Aquatic Living Resources*, *35*. <https://doi.org/10.1051/alr/2022011>
- Chopin, T., Buschmann, A. H., Halling, C., Troell, M., Kautsky, N., Neori, A., Kraemer, G. P., Zertuche-González, J. A., Yarish, C., & Neefus, C. (2001). Integrating seaweeds into marine aquaculture systems: A key toward sustainability. *Journal of Phycology*, *37*(6), 975–986. <https://doi.org/10.1046/J.1529-8817.2001.01137.X>
- Cortés-Jacinto, E., Villarreal-Colmenares, H., Civera-Cerecedo, R., & Martínez-Córdova, R. (2003). Effect of dietary protein level on growth and survival of juvenile freshwater crayfish *Cherax quadricarinatus* (Decapoda: Parastacidae). *Aquaculture Nutrition*, *9*(4), 207–213. <https://doi.org/10.1046/j.1365-2095.2003.00241.x>
- D'Abramo & Robinson. (1989). *Nutrition of Crayfish*. [https://www.mendeley.com/search/?page=1&query=D%27Abramo %26 Robinson&sortBy=relevance](https://www.mendeley.com/search/?page=1&query=D%27Abramo%26Robinson&sortBy=relevance)
- Dawood, M. A. O., Koshio, S., Abdel-Daim, M. M., & Van Doan, H. (2019). Probiotic application for sustainable aquaculture. *Reviews in Aquaculture*, *11*(3), 907–924. <https://doi.org/10.1111/raq.12272>
- De Angelis, M., & Gobbetti, M. (2016). *Lactobacillus* SPP.: General Characteristics ☆. *Reference Module in Food Science*, September. <https://doi.org/10.1016/b978-0-08-100596-5.00851-9>
- de Souza, D. M., Borges, V. D., Furtado, P., Romano, L. A., Wasielesky, W., Monserrat, J. M., & de Oliveira Garcia, L. (2016). Antioxidant enzyme

- activities and immunological system analysis of *Litopenaeus vannamei* reared in biofloc technology (BFT) at different water temperatures. *Aquaculture*, 451, 436–443. <https://doi.org/10.1016/j.aquaculture.2015.10.006>
- Defoirdt, T., Thanh, L. D., Van Delsen, B., De Schryver, P., Sorgeloos, P., Boon, N., & Bossier, P. (2011). N-acylhomoserine lactone-degrading *Bacillus* strains isolated from aquaculture animals. *Aquaculture*, 311(1–4), 258–260. <https://doi.org/10.1016/j.aquaculture.2010.11.046>
- Didinen, B. I., Bahadir Koca, S., Metin, S., Diler, O., Erol, K. G., Dulluc, A., Koca, H. U., Yigit, N. O., Ozkok, R., & Kucukkara, R. (2016). Effect of lactic acid bacteria and the potential probiotic *Hafnia alvei* on growth and survival rates of narrow clawed crayfish (*Astacus leptodactylus* Esch., 1823) stage II juveniles. *Iranian Journal of Fisheries Sciences*, 15(4), 1307–1317.
- Donaldson, M. R., Cooke, S. J., Patterson, D. A., & Macdonald, J. S. (2008). Cold shock and fish. *Journal of Fish Biology*, 73(7), 1491–1530. <https://doi.org/10.1111/j.1095-8649.2008.02061.x>
- El-Saadony, M. T., Alagawany, M., Patra, A. K., Kar, I., Tiwari, R., Dawood, M. A. O., Dhama, K., & Abdel-Latif, H. M. R. (2021). The functionality of probiotics in aquaculture: An overview. *Fish and Shellfish Immunology*, 117(July), 36–52. <https://doi.org/10.1016/j.fsi.2021.07.007>
- FAO. (2016). The State of World Fisheries and Aquaculture. Contributing to food security and nutrition for all. In *Food and Agriculture Organization of the United Nations*.
- FAO. (2017). *Cherax quadricarinatus* (von Martens, 1868). Cultured species information program. *FFaAD*. <https://doi.org/10.52578/2305-9397-2023-4-1-145-155>
- Fotedar, R. (2004). Effect of dietary protein and lipid source on the growth, survival, condition indices, and body composition of marron, *Cherax tenuimanus* (Smith). *Aquaculture*, 230(1–4), 439–455. [https://doi.org/10.1016/S0044-8486\(03\)00418-6](https://doi.org/10.1016/S0044-8486(03)00418-6)
- Foysal, M. J., Chua, E. G., Gupta, S. K., Lamichhane, B., Tay, C. Y., & Fotedar, R. (2020). *Bacillus mycoides* supplemented diet modulates the health status, gut microbiota and innate immune response of freshwater crayfish marron (*Cherax cainii*). *Animal Feed Science and Technology*, 262(August 2019), 114408. <https://doi.org/10.1016/j.anifeedsci.2020.114408>
- Foysal, M. J., Fotedar, R., Siddik, M. A. B., Chaklader, M. R., & Tay, A. (2021). *Lactobacillus plantarum* in black soldier fly (*Hermetica illucens*) meal modulates gut health and immunity of freshwater crayfish (*Cherax cainii*). *Fish and Shellfish Immunology*, 108, 42–52. <https://doi.org/10.1016/j.fsi.2020.11.020>
- Foysal, M. J., Fotedar, R., Siddik, M. A. B., & Tay, A. (2020). *Lactobacillus acidophilus* and *L. plantarum* improve health status, modulate gut microbiota and innate immune response of marron (*Cherax cainii*). *Scientific Reports*, 10(1), 1–13. <https://doi.org/10.1038/s41598-020-62655-y>
- Foysal, M. J., Nguyen, T. T. T., Chaklader, M. R., Siddik, M. A. B., Tay, C. Y., Fotedar, R., & Gupta, S. K. (2019). Marked variations in gut microbiota and some innate immune responses of fresh water crayfish, marron (*Cherax*

- cainii, Austin 2002) fed dietary supplementation of *Clostridium butyricum*. *PeerJ*, 2019(8). <https://doi.org/10.7717/peerj.7553>
- García-Guerrero, M., Hernández-Sandoval, P., Orduña-Rojas, J., & Cortés-Jacinto, E. (2013). Effect of temperature on weight increase, survival, and thermal preference of juvenile redclaw crayfish *Cherax quadricarinatus*. *Hidrobiologica*, 23(1), 73–81.
- García-Guerrero, M., Villarreal, H., & Racotta, I. S. (2003). Effect of temperature on lipids, proteins, and carbohydrates levels during development from egg extrusion to juvenile stage of *Cherax quadricarinatus* (Decapoda: Parastacidae). *Comparative Biochemistry and Physiology - A Molecular and Integrative Physiology*, 135(1), 147–154. [https://doi.org/10.1016/S1095-6433\(02\)00354-9](https://doi.org/10.1016/S1095-6433(02)00354-9)
- García-Ulloa, G. M., Pérez-Moreno, M. R., Rodríguez-González, D., Gallo-García, M. C., Ponce-Palafox, J. T., Rodríguez-González, H., & Góngora-Gómez, A. M. (2012). Stocking Density for Nursery Production of Redclaw Crayfish, *Cherax quadricarinatus*, in a Recirculating System. *Journal of Applied Aquaculture*, 24(1), 8–15. <https://doi.org/10.1080/10454438.2012.650599>
- Gensemer, R. W., Gondek, J. C., Rodriquez, P. H., Arbildua, J. J., Stubblefield, W. A., Cardwell, A. S., Santore, R. C., Ryan, A. C., Adams, W. J., & Nordheim, E. (2018). Evaluating the effects of pH, hardness, and dissolved organic carbon on the toxicity of aluminum to freshwater aquatic organisms under circumneutral conditions. *Environmental Toxicology and Chemistry*, 37(1), 49–60. <https://doi.org/10.1002/etc.3920>
- Gismondo, M. R., Drago, L., & Lombardi, A. (1999). Review of probiotics available to modify gastrointestinal flora. *International Journal of Antimicrobial Agents*, 12(4), 287–292. [https://doi.org/10.1016/S0924-8579\(99\)00050-3](https://doi.org/10.1016/S0924-8579(99)00050-3)
- Gresma, J. (2021). *Bacillus sebagai mikroba yang ramah bagi akuakultur*. *Perkenalan Machine Translated by Google Aplikasi dalam akuakultur*. 323–353.
- Guenard, R. (2021). Poisson from a petri dish. In *Inform* (Vol. 32, Issue 6). <https://doi.org/10.4060/ca9229en>
- Hai, N. V. (2015). The use of probiotics in aquaculture. *Journal of Applied Microbiology*, 119(4), 917–935. <https://doi.org/10.1111/jam.12886>
- Hancz, C. (2022). *Application of Probiotics for Environmentally Friendly and Sustainable Aquaculture : A Review*.
- Hartnoll, R. G. (2001). Growth in Crustacea — twenty years on. *Advances in Decapod Crustacean Research*, 111–122. https://doi.org/10.1007/978-94-017-0645-2_11
- Haubrock, P. J., Oficialdegui, F. J., Zeng, Y., Patoka, J., Yeo, D. C. J., & Kouba, A. (2021). The redclaw crayfish: A prominent aquaculture species with invasive potential in tropical and subtropical biodiversity hotspots. *Reviews in Aquaculture*, 13(3), 1488–1530. <https://doi.org/10.1111/raq.12531>
- He, S., Liu, W., Zhou, Z., Mao, W., Ren, P., Marubashi, T., & Ringø, E. (2011). Evaluation of probiotic strain *Bacillus subtilis* C-3102 as a feed supplement for koi carp (*Cyprinus carpio*). *Journal of Aquaculture Research and*

- Development, SPEC. ISSUE 1*. <https://doi.org/10.4172/2155-9546.S1-005>
- Henriques, A. O., & Moran, C. P. (2000). Structure and assembly of the bacterial endospore coat. *Methods*, 20(1), 95–110. <https://doi.org/10.1006/meth.1999.0909>
- Hidayah, S. N. (2024). *Perubahan pola makan udang karang capit merah air tawar muda (Cherax quadricarinatus): Tinjauan*.
- Hill, C., Guarner, F., Reid, G., Gibson, G. R., Merenstein, D. J., Pot, B., Morelli, L., Canani, R. B., Flint, H. J., Salminen, S., Calder, P. C., & Sanders, M. E. (2014). Expert consensus document: The international scientific association for probiotics and prebiotics consensus statement on the scope and appropriate use of the term probiotic. *Nature Reviews Gastroenterology and Hepatology*, 11(8), 506–514. <https://doi.org/10.1038/nrgastro.2014.66>
- Hoseinifar, S. H., Faheem, M., Liaqat, I., Doan, H. Van, & Ghosh, K. (2024). *Promising Probiotic Candidates for Sustainable Aquaculture: An Updated Review*. 1–31.
- Hrynevych, N. E., Zharchynska, V. S., Svitelskyi, M. M., Khomiak, O. A., & Sliusarenko, A. O. (2022). Promising Object of Aquaculture of Crustaceans *Cherax Quadricarinatus* (Von Martens, 1868): Biology, Technology (Review). *Water Bioresources and Aquaculture*, 1, 47–62. <https://doi.org/10.32851/wba.2022.1.4>
- Irianto, A., & Austin, B. (2002). Irianto_et_al-2002-Journal_of_Fish_Diseases.pdf. *Fish Diseases*, 25(1997), 333–342.
- Islam, M. S., Das, M., Chakroborty, K., Lee, J. M., Islam, M. R., & Rafiquzzaman, S. M. (2024). Aquamimicry improves the growth performance and immunity of black tiger shrimp (*Penaeus monodon*) in low saline ponds. *Aquaculture Reports*, 36(January), 102082. <https://doi.org/10.1016/j.aqrep.2024.102082>
- Jadhav, H., Shaikh, S. S., & Sayyed, R. (2017). Rhizotrophs: Plant Growth Promotion to Bioremediation. *Rhizotrophs: Plant Growth Promotion to Bioremediation*, August. <https://doi.org/10.1007/978-981-10-4862-3>
- James, G., Das, B. C., Jose, S., & Rejish, R. K. (2021). Bacillus as an aquaculture friendly microbe. *Aquaculture International*, 29(1), 323–353. <https://doi.org/10.1007/s10499-020-00630-0>
- Jerry, D. R., Purvis, I. W., Piper, L. R., & Dennis, C. A. (2005). Selection for faster growth in the freshwater crayfish *Cherax destructor*. *Aquaculture*, 247(1–4), 169–176. <https://doi.org/10.1016/j.aquaculture.2005.02.010>
- Jiang, Q., Lv, L., Jiang, G., Minter, E., Wang, Q., Huang, W., Dong, S., & Yang, J. (2012). Acute effects of ammonia on antioxidative response and gill Na⁺/K⁺ ATPase activity of juvenile Australian red claw crayfish (*Cherax quadricarinatus*). *Journal of Freshwater Ecology*, 27(4), 551–560. <https://doi.org/10.1080/02705060.2012.678395>
- Jiang, Z., Qian, D., Liang, Z., Wu, S., Han, F., Xu, C., Chi, M., & Li, E. (2024). Evaluation of Dietary Essential Amino Acid Supplementation on Growth, Digestive Capacity, Antioxidant, and Intestine Health of the Juvenile Redclaw Crayfish, *Cherax quadricarinatus*. *Aquaculture Nutrition*, 2024. <https://doi.org/10.1155/2024/8767751>
- Jones, C. (1994). A global perspective of the culture of Australian redclaw crayfish, *Cherax quadricarinatus*: Production, economics and marketing.

- Article in *Journal of the World Aquaculture Society*, January 1994.
<https://www.researchgate.net/publication/257938912>
- Jones, C. (2015). The Biology and Aquaculture Potential of *Cherax quadricarinatus*. *Queensland Department of Primary Industries and Fisheries*, October, 98–99.
- Jones, C. M. (1995a). *Effect of Temperature on Growth and Survival of the Tropical Freshwater Crayfish Cherax Ouadricarinatus (Von Martens) (Decapoda, Parastacidae)*. 4324(May), 391–398.
- Jones, C. M. (1995b). *jones1995.pdf* (pp. 221–238).
- Jones, C. M. (1995c). Production of juvenile redclaw crayfish, *Cherax quadricarinatus* (von Martens) (Decapoda, Parastacidae) I. Development of hatchery and nursery procedures. *Aquaculture*, 138(1–4), 221–238.
[https://doi.org/10.1016/0044-8486\(95\)00068-2](https://doi.org/10.1016/0044-8486(95)00068-2)
- Jones, C. M. (1995d). Production of juvenile redclaw crayfish, *Cherax quadricarinatus* (von Martens) (Decapoda, Parastacidae) II. Juvenile nutrition and habitat. *Aquaculture*, 138(1–4), 239–245.
[https://doi.org/10.1016/0044-8486\(95\)00069-0](https://doi.org/10.1016/0044-8486(95)00069-0)
- Jones, C. M., & Ruscoe, I. M. (1996). Production technology for redclaw crayfish (*Cherax quadricarinatus*). *Final Report FRDC Project*, 92(January 1996), 127–133.
- Jones, C. M., & Ruscoe, I. M. (2000). Assessment of stocking size and density in the production of redclaw crayfish, *Cherax quadricarinatus* (von Martens) (Decapoda: Parastacidae), cultured under earthen pond conditions. *Aquaculture*, 189(1–2), 63–71. [https://doi.org/10.1016/S0044-8486\(00\)00359-8](https://doi.org/10.1016/S0044-8486(00)00359-8)
- Jones, C. M., & Ruscoe, I. M. (2001). Assessment of Five Shelter Types in the Production of Redclaw Crayfish *Cherax quadricarinatus* (Decapoda: Parastacidae) Under Earthen Pond Conditions. *Journal of the World Aquaculture Society*, 32(1), 41–52. <https://doi.org/10.1111/j.1749-7345.2001.tb00920.x>
- Kaktcham, P. M., Temgoua, J. B., Zambou, F. N., Diaz-Ruiz, G., Wachter, C., & Pérez-Chabela, M. de L. (2018). In Vitro Evaluation of the Probiotic and Safety Properties of Bacteriocinogenic and Non-Bacteriocinogenic Lactic Acid Bacteria from the Intestines of Nile Tilapia and Common Carp for Their Use as Probiotics in Aquaculture. *Probiotics and Antimicrobial Proteins*, 10(1), 98–109. <https://doi.org/10.1007/s12602-017-9312-8>
- Karplus, I., & Barki, A. (2004). Social control of growth in the redclaw crayfish, *Cherax quadricarinatus*: Testing the sensory modalities involved. *Aquaculture*, 242(1–4), 321–333.
<https://doi.org/10.1016/j.aquaculture.2004.08.041>
- Katarzyna, Ś. (2021). *Ślizewska2021_Article_ProbioticPropertiesOfNewLactob.pdf*. 146–162.
- King, C. R. (1994). Growth and survival of redclaw crayfish hatchlings (*Cherax quadricarinatus* von Martens) in relation to temperature, with comments on the relative suitability of *Cherax quadricarinatus* and *Cherax destructor* for culture in Queensland. *Aquaculture*, 122(1), 75–80.
[https://doi.org/10.1016/0044-8486\(94\)90335-2](https://doi.org/10.1016/0044-8486(94)90335-2)

- Kleinhappel, T. K., Burman, O. H. P., John, E. A., Wilkinson, A., & Pike, T. W. (2019). The impact of water pH on association preferences in fish. *Ethology*, 125(4), 195–202. <https://doi.org/10.1111/eth.12843>
- Kuebutornye, F. K. A., Abarike, E. D., & Lu, Y. (2019). Fish and Shellfish Immunology A review on the application of Bacillus as probiotics in aquaculture. *Fish and Shellfish Immunology*, 87(November 2018), 820–828. <https://doi.org/10.1016/j.fsi.2019.02.010>
- Kumar, V., Roy, S., Meena, D. K., & Sarkar, U. K. (2016). Application of Probiotics in Shrimp Aquaculture: Importance, Mechanisms of Action, and Methods of Administration. *Reviews in Fisheries Science and Aquaculture*, 24(4), 342–368. <https://doi.org/10.1080/23308249.2016.1193841>
- Lawrence, C. (1998). *FISHERIES RESEARCH REPORT NO . 112 , 1998 Final Report , FRDC Project 94 / 075 : Enhancement of yabby production from Western Australian farm dams Principal Investigator : Project Staff : Western Australia 6020. 112.*
- Li, H. dong, Tian, X. li, & Dong, S. lin. (2019). Growth performance, non-specific immunity, intestinal histology and disease resistance of *Litopenaeus vannamei* fed on a diet supplemented with live cells of *Clostridium butyricum*. *Aquaculture*, 498, 470–481. <https://doi.org/10.1016/j.aquaculture.2018.09.003>
- Li, W., Zhao, A., Chen, Y., Yin, Z., Mao, Y., Qu, Z., & Zhang, S. (2025). *Key Differences in the Gut Microbiota of Red-Claw Crayfish *Cherax quadricarinatus* with Different Sizes and Genders Under Consistent Farming Conditions.* 1–26.
- Lin, X., Zhang, T., Ju, L., Jiang, Y., Hou, Q., Hu, Z., Wang, Y., & Wang, Z. (2021). Effects of Supplemental Feeding of Probiotics during Lactation on Rumen Microflora of Calves after Weaning. *Advances in Bioscience and Biotechnology*, 12(07), 213–228. <https://doi.org/10.4236/abb.2021.127014>
- Linan-vidriales, M. A., Pena-rodriguez, A., Tovar-, D., Elizondo-gonzález, R., Madrid-sandoval, D. R., Ponce-gracia, E. I., Rodríguez-jaramillo, C., José, L., & Quiroz-guzman, E. (2020). *n a i t k u b m e p - a r P l a n r u J.*
- Liñan-Vidriales, M. A., Peña-Rodríguez, A., Tovar-Ramírez, D., Elizondo-González, R., Barajas-Sandoval, D. R., Ponce-Gracia, E. I., Rodríguez-Jaramillo, C., Balcázar, J. L., & Quiroz-Guzmán, E. (2021). Effect of rice bran fermented with *Bacillus* and *Lysinibacillus* species on dynamic microbial activity of Pacific white shrimp (*Penaeus vannamei*). *Aquaculture*, 531, 735958. <https://doi.org/10.1016/j.aquaculture.2020.735958>
- Lu, Y. P., Zheng, P. H., Zhang, Z. L., Li, J. T., Li, J. J., Li, T., Wang, X., Xu, J. R., Wang, D. M., Xian, J. A., & Zhang, X. X. (2023). Effects of dietary *Radix bupleuri* root extract on the growth, muscle composition, histology, immune responses and microcystin-LR stress resistance of juvenile red claw crayfish (*Cherax quadricarinatus*). *Aquaculture Reports*, 33. <https://doi.org/10.1016/j.aqrep.2023.101822>
- Mamuaya, J., Mingkid, W. M., Kalesaran, O. J., Sinjal, H. J., Tumbol, R. A., & Tombokan, J. L. (2019). Sintasan Hidup Dan Pertumbuhan Juvenil Lobster Air Tawar (*Cherax Quadricarinatus*) Dengan Shelter Berbeda. *Jurnal Ilmiah Platax*, 7(2), 427–431.

- Martínez Cruz, P., Ibáñez, A. L., Monroy Hermosillo, O. A., & Ramírez Saad, H. C. (2012a). Use of Probiotics in Aquaculture. *ISRN Microbiology*, 2012(May 2014), 1–13. <https://doi.org/10.5402/2012/916845>
- Martínez Cruz, P., Ibáñez, A. L., Monroy Hermosillo, O. A., & Ramírez Saad, H. C. (2012b). Use of Probiotics in Aquaculture. *ISRN Microbiology*, 2012, 1–13. <https://doi.org/10.5402/2012/916845>
- Masser, M., Rouse, D., & Center, S. (1997). Australian red claw crayfish. *Southern Regional Aquaculture Center*, 244, 1–8. <http://www.ca.uky.edu/wkrec/AustralianRedClaw.pdf>
- Mauro, M., Di Grigoli, A., Maniaci, G., Hornsby, L. B., Badalamenti, G., Chirco, P., Arizza, V., Gargano, C., Bellini, P., Arculeo, M., Listro, A., Ponte, M., & Vazzana, M. (2024). *Cherax destructor* (Clark, 1836) and *Cherax quadricarinatus* (von Martens, 1868): Biochemical parameters and preliminary analysis of food quality. *Aquaculture Reports*, 36(January), 102162. <https://doi.org/10.1016/j.aqrep.2024.102162>
- Meade and Stephen. (1995). *Cherax quadricarinatus*. 26(4).
- Meade, M. E., Doeller, J. E., Kraus, D., & Watts, S. A. (2002). Effects of Temperature and Salinity on Weight Gain, Oxygen Consumption Rate, and Growth Efficiency in Juvenile Red-Claw Crayfish *Cherax quadricarinatus*. *Journal of the World Aquaculture Society*, 33(2), 188–198. <https://doi.org/10.1111/j.1749-7345.2002.tb00494.x>
- Méndez-Martínez, Y., Torres-Navarrete, Y. G., Cortés-Jacinto, E., García-Guerrero, M. U., Hernández-Hernández, L. H., & Verdecia, D. M. (2022). Biological, nutritional, and hematoimmune response in juvenile *Cherax quadricarinatus* (Decapoda: Parastacidae) fed with probiotic mixture. *Revista MVZ Cordoba*, 27(3). <https://doi.org/10.21897/rmvz.2578>
- Mohammed, E. A. H., Ahmed, A. E. M., Kovács, B., & Pál, K. (2025). The Significance of Probiotics in Aquaculture: A Review of Research Trend and Latest Scientific Findings. *Antibiotics*, 14(3), 1–26. <https://doi.org/10.3390/antibiotics14030242>
- Mohapatra, S., Chakraborty, T., Kumar, V., Deboeck, G., & Mohanta, K. N. (2013). Aquaculture and stress management: A review of probiotic intervention. *Journal of Animal Physiology and Animal Nutrition*, 97(3), 405–430. <https://doi.org/10.1111/j.1439-0396.2012.01301.x>
- Mujeeb Rahiman, K. M., Jesmi, Y., Thomas, A. P., & Mohamed Hatha, A. A. (2010). Probiotic effect of *Bacillus* NL110 and *Vibrio* NE17 on the survival, growth performance and immune response of *Macrobrachium rosenbergii* (de Man). *Aquaculture Research*, 41(9). <https://doi.org/10.1111/j.1365-2109.2009.02473.x>
- Naranjo-Páramo, J., Hernández-Llamas, A., Vargas-Mendieta, M., & Villarreal-Colmenares, H. (2021). Stochastic dynamic model analysis of the effect of stocking density on the monosex production of male redclaw crayfish *Cherax quadricarinatus* reared in commercial gravel-lined ponds. *Aquaculture*, 535(December 2020). <https://doi.org/10.1016/j.aquaculture.2021.736351>
- Nayak, S. K. (2021). Multifaceted applications of probiotic *Bacillus* species in aquaculture with special reference to *Bacillus subtilis*. *Reviews in*

- Aquaculture*, 13(2), 862–906. <https://doi.org/10.1111/raq.12503>
- Needham, A. E. (1964). *The Growth Process in Animals.pdf*. December.
- Ngasotter, S., Meitei, M. M., Kara, T., Meinam, M., Sharma, S., Rathod, S. K., Singh, S. B., Singh, S. K., Aadil, R., & Bhat, H. (2025). *Review Article Multifaceted Role of Probiotics in Enhancing Health and Growth of Aquatic Animals: Mechanisms, Benefits, and Applications in Sustainable Aquaculture — A Review and Bibliometric Analysis*. 2025.
- Nicholson, W. L., Munakata, N., Horneck, G., Melosh, H. J., & Setlow, P. (2000). Resistance of Bacillus Endospores to Extreme Terrestrial and Extraterrestrial Environments. *Microbiology and Molecular Biology Reviews*, 64(3), 548–572. <https://doi.org/10.1128/membr.64.3.548-572.2000>
- Nie, X., Huang, C., Wei, J., Wang, Y., Hong, K., Mu, X., Liu, C., Chu, Z., Zhu, X., & Yu, L. (2024). Effects of Photoperiod on Survival, Growth, Physiological, and Biochemical Indices of Redclaw Crayfish (*Cherax quadricarinatus*) Juveniles. *Animals*, 14(3). <https://doi.org/10.3390/ani14030411>
- Nimrat, S., Boonthai, T., & Vuthiphandchai, V. (2011). Effects of probiotic forms, compositions of and mode of probiotic administration on rearing of Pacific white shrimp (*Litopenaeus vannamei*) larvae and postlarvae. *Animal Feed Science and Technology*, 169(3–4), 244–258. <https://doi.org/10.1016/j.anifeedsci.2011.07.003>
- Nisar, U., Peng, D., Mu, Y., & Sun, Y. (2022). A Solution for Sustainable Utilization of Aquaculture Waste: A Comprehensive Review of Biofloc Technology and Aquamimicry. *Frontiers in Nutrition*, 8(January), 1–15. <https://doi.org/10.3389/fnut.2021.791738>
- Núñez-Amao, L., Naranjo-Páramo, J., Hernández-Llamas, A., Vargas-Mendieta, M., & Villarreal, H. (2019). Estimating production costs of preadult redclaw crayfish, *Cherax quadricarinatus*, reared in a commercial nursery system: A stochastic bioeconomic approach. *Journal of the World Aquaculture Society*, 50(1), 172–185. <https://doi.org/10.1111/jwas.12554>
- Oktaviana, A., & Febriani, D. (2021). Additional Lactobacillus and Coconut Powder to Increase Growth and Survival Rate on *Cherax* sp. *IOP Conference Series: Earth and Environmental Science*, 1012(1). <https://doi.org/10.1088/1755-1315/1012/1/012045>
- Onomu, A. J., & Okuthe, G. E. (2024). The Role of Functional Feed Additives in Enhancing Aquaculture Sustainability. *Fishes*, 9(5). <https://doi.org/10.3390/fishes9050167>
- Organization, T. W. H. (2001). Health and Nutritional Properties of Probiotics in Food including Powder Milk with Live Lactic Acid Bacteria. *Fao & Who, October*, 1–34. [http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Health+and+Nutrit](http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Health+and+Nutritional+Properties+of+Probiotics+in+Food+including+Powder+Milk+with+Live+Lactic+Acid+Bacteria#2%5Cnhttp://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Health+and+Nutrit)
- Pandiyan, P., Balaraman, D., Thirunavukkarasu, R., George, E. G. J., Subaramaniyan, K., Manikkam, S., & Sadayappan, B. (2013). Probiotics in aquaculture. *Drug Invention Today*, 5(1), 55–59. <https://doi.org/10.1016/j.dit.2013.03.003>

- Pinto, G. F., & Rouse, D. B. (1996). Growth and survival of the Australian red claw crayfish *Cherax quadricarinatus* at three densities in earthen ponds. *Journal of the World Aquaculture Society*, 27(2), 187–193. <https://doi.org/10.1111/j.1749-7345.1996.tb00268.x>
- Prymaczok, N. C., Medesani, D. A., & Rodriguez, E. M. (2008). Levels of ions and organic metabolites in the adult freshwater crayfish, *Cherax quadricarinatus*, exposed to different salinities. *Marine and Freshwater Behaviour and Physiology*, 41(2), 121–130. <https://doi.org/10.1080/10236240802193893>
- Qiu, J., Wang, W. N., Wang, L. J., Liu, Y. F., & Wang, A. L. (2011). Oxidative stress, DNA damage and osmolality in the Pacific white shrimp, *Litopenaeus vannamei* exposed to acute low temperature stress. *Comparative Biochemistry and Physiology - C Toxicology and Pharmacology*, 154(1), 36–41. <https://doi.org/10.1016/j.cbpc.2011.02.007>
- Qiu, Z., Xu, Q., Li, S., Zheng, D., Zhang, R., Zhao, J., & Wang, T. (2023). Effects of Probiotics on the Water Quality, Growth Performance, Immunity, Digestion, and Intestinal Flora of Giant Freshwater Prawn (*Macrobrachium rosenbergii*) in the Biofloc Culture System. *Water (Switzerland)*, 15(6). <https://doi.org/10.3390/w15061211>
- Rahayu, S., Amoah, K., Huang, Y., Cai, J., Wang, B., Shija, V. M., Jin, X., Anokyewaa, M. A., & Jiang, M. (2024). Probiotics application in aquaculture: its potential effects, current status in China and future prospects. *Frontiers in Marine Science*, 11(September), 1–23. <https://doi.org/10.3389/fmars.2024.1455905>
- Rasul, N. (2024). *Disease Prevalence, Usage of Aquaculture Medicinal Products and Their Sustainable Alternatives in Freshwater Aquaculture of North-Central Bangladesh*. <https://doi.org/10.1002/vms3.70276>
- Reimann, C., Ginet, N., Michel, L., Keel, C., Michaux, P., Krishnapillai, V., Zala, M., Heurlier, K., Triandafillu, K., Harms, H., Défago, G., & Hass, D. (2002). Genetically programmed autoinducer destruction reduces virulence gene expression and swarming motility in *Pseudomonas aeruginosa* PAO1. *Microbiology*, 148(4), 923–932. <https://doi.org/10.1099/00221287-148-4-923>
- Ren, W., Wu, H., Guo, C., Xue, B., Long, H., Zhang, X., Cai, X., Huang, A., & Xie, Z. (2021). Multi-Strain Tropical *Bacillus* spp. as a Potential Probiotic Biocontrol Agent for Large-Scale Enhancement of Mariculture Water Quality. *Frontiers in Microbiology*, 12(August), 1–14. <https://doi.org/10.3389/fmicb.2021.699378>
- Riaz Rajoka, M. S., Mehwish, H. M., Siddiq, M., Haobin, Z., Zhu, J., Yan, L., Shao, D., Xu, X., & Shi, J. (2017). Identification, characterization, and probiotic potential of *Lactobacillus rhamnosus* isolated from human milk. *Lwt*, 84, 271–280. <https://doi.org/10.1016/j.lwt.2017.05.055>
- Rigg, D. P., Courtney, R. L., Jones, C. M., & Seymour, J. E. (2021). Morphology and Weight-length Relationships for the First Six Instars of *Cherax quadricarinatus* (von Martens, 1868). *Freshwater Crayfish*, 26(1), 9–16. <https://doi.org/10.5869/fc.2021.v26-1.9>
- Rigg, D. P., Seymour, J. E., Courtney, R. L., & Jones, C. M. (2020). A review of

- juvenile redclaw crayfish *Cherax quadricarinatus* (von Martens, 1898) aquaculture: Global production practices and innovation. *Freshwater Crayfish*, 25(1), 13–30. <https://doi.org/10.5869/FC.2020.V25-1.013>
- Ringø, E. (2020). Probiotics in shellfish aquaculture. *Aquaculture and Fisheries*, 5(1), 1–27. <https://doi.org/10.1016/j.aaf.2019.12.001>
- Ringø, E., Hoseinifar, S. H., Ghosh, K., Doan, H. Van, Beck, B. R., & Song, S. K. (2018). Lactic acid bacteria in finfish—An update. *Frontiers in Microbiology*, 9(AUG), 1–37. <https://doi.org/10.3389/fmicb.2018.01818>
- Ringø, E., Li, X., Doan, H. van, & Ghosh, K. (2022). Interesting Probiotic Bacteria Other Than the More Widely Used Lactic Acid Bacteria and Bacilli in Finfish. *Frontiers in Marine Science*, 9(June 2022), 1–27. <https://doi.org/10.3389/fmars.2022.848037>
- Ringø, E., Van Doan, H., Lee, S. H., Soltani, M., Hoseinifar, S. H., Harikrishnan, R., & Song, S. K. (2020). Probiotics, lactic acid bacteria and bacilli: interesting supplementation for aquaculture. *Journal of Applied Microbiology*, 129(1), 116–136. <https://doi.org/10.1111/jam.14628>
- Ringø, E., Zhou, Z., Vecino, J. L. G., Wadsworth, S., Romero, J., Krogdahl, Olsen, R. E., Dimitroglou, A., Foey, A., Davies, S., Owen, M., Lauzon, H. L., Martinsen, L. L., De Schryver, P., Bossier, P., Sperstad, S., & Merrifield, D. L. (2016). Effect of dietary components on the gut microbiota of aquatic animals. A never-ending story? *Aquaculture Nutrition*, 22(2), 219–282. <https://doi.org/10.1111/anu.12346>
- Rodríguez-González, H., Villarreal, H., García-Ulloa, M., & Hernández-Llamas, A. (2009). Evaluation of practical diets containing different protein levels on gonad development of female redclaw crayfish *Cherax quadricarinatus*. *Aquaculture Nutrition*, 15(4). <https://doi.org/10.1111/j.1365-2095.2008.00599.x>
- Sadat Hoseini Madani, N., Adorian, T. J., Ghafari Farsani, H., & Hoseinifar, S. H. (2018). The effects of dietary probiotic Bacilli (*Bacillus subtilis* and *Bacillus licheniformis*) on growth performance, feed efficiency, body composition and immune parameters of whiteleg shrimp (*Litopenaeus vannamei*) postlarvae. *Aquaculture Research*, 49(5), 1926–1933. <https://doi.org/10.1111/are.13648>
- Saoud, I. P., Garza De Yta, A., & Ghanawi, J. (2012). A review of nutritional biology and dietary requirements of redclaw crayfish *Cherax quadricarinatus* (von Martens 1868). *Aquaculture Nutrition*, 18(4), 349–368. <https://doi.org/10.1111/j.1365-2095.2011.00925.x>
- Saoud, I. P., Ghanawi, J., Thompson, K. R., & Webster, C. D. (2013). A Review of the Culture and Diseases of Redclaw Crayfish *Cherax quadricarinatus* (Von Martens 1868). *Journal of the World Aquaculture Society*, 44(1), 1–29. <https://doi.org/10.1111/jwas.12011>
- Selim, K. M., & Reda, R. M. (2015). Improvement of immunity and disease resistance in the Nile tilapia, *Oreochromis niloticus*, by dietary supplementation with *Bacillus amyloliquefaciens*. *Fish and Shellfish Immunology*, 44(2), 496–503. <https://doi.org/10.1016/j.fsi.2015.03.004>
- Shi, Y., Zhao, J., Kellingray, L., Zhang, H., Narbad, A., Zhai, Q., & Chen, W. (2019). In vitro and in vivo evaluation of *Lactobacillus* strains and

- comparative genomic analysis of *Lactobacillus plantarum* CGMCC12436 reveal candidates of colonise-related genes. *Food Research International*, 119, 813–821. <https://doi.org/10.1016/j.foodres.2018.10.064>
- Shun, C., Yong-yi, J., Mei-li, C., Jian-bo, Z., Shi-li, L., & Zhi-min, G. (2020). Culture model of *Cherax quadricarinatus*: Temporary shelter in shed and pond culture. *Aquaculture*, 526(March), 735359. <https://doi.org/10.1016/j.aquaculture.2020.735359>
- Sidorova, N. A. (2024). Results of the study on the antimicrobial activity of probiotic strains of lactobacilli and their potential application in feed formulations for aquaculture species. *BIO Web of Conferences*, 82, 7–11. <https://doi.org/10.1051/bioconf/20248203007>
- Small, K., Kopf, R. K., Watts, R. J., & Howitt, J. (2014). Hypoxia, blackwater and fish kills: Experimental lethal oxygen thresholds in Juvenile Predatory Lowland River fishes. *PLoS ONE*, 9(4). <https://doi.org/10.1371/journal.pone.0094524>
- Snovsky, G., & Galil, B. S. (2011). The Australian redclaw crayfish *Cherax quadricarinatus* (von Martens, 1868) (Crustacea: Decapoda: Parastactidae) in the sea of Galilee, Israel. *Aquatic Invasions*, 6(SUPPL.1). <https://doi.org/10.3391/ai.2011.6.S1.007>
- Stein, T. (2005). *Bacillus subtilis* antibiotics: Structures, syntheses and specific functions. *Molecular Microbiology*, 56(4), 845–857. <https://doi.org/10.1111/j.1365-2958.2005.04587.x>
- Stentiford, G. D., Neil, D. M., Peeler, E. J., Shields, J. D., Small, H. J., Flegel, T. W., Vlcek, J. M., Jones, B., Morado, F., Moss, S., Lotz, J., Bartholomay, L., Behringer, D. C., Hauton, C., & Lightner, D. V. (2012). Disease will limit future food supply from the global crustacean fishery and aquaculture sectors. *Journal of Invertebrate Pathology*, 110(2), 141–157. <https://doi.org/10.1016/j.jip.2012.03.013>
- Stumpf, L., Greco, L. S. L., & Lazzari, C. R. (2015). Compensatory growth in juveniles of freshwater redclaw crayfish *Cherax quadricarinatus* reared at three different temperatures: Hyperphagia and food efficiency as primary mechanisms. *PLoS ONE*, 10(9), 1–19. <https://doi.org/10.1371/journal.pone.0139372>
- Subedi, B., & Shrestha, A. (2020). --A review: Application of probiotics in aquaculture. *International Journal of Forest, Animal and Fisheries Research (IJFAF)*, 4(5), 52–60.
- Thompson, K. R., Muzinic, L. A., Engler, L. S., & Webster, C. D. (2005). Evaluation of practical diets containing different protein levels, with or without fish meal, for juvenile Australian red claw crayfish (*Cherax quadricarinatus*). *Aquaculture*, 244(1–4), 241–249. <https://doi.org/10.1016/j.aquaculture.2004.11.018>
- Tinh, N. T. N., Dung, N. V., Trung, C. T., & Thuy, V. T. (2013). In Vitro Characterization of a Recombinant AHL-Lactonase from *Bacillus cereus* Isolated from a Striped Catfish (*Pangasianodon hypophthalmus*) Pond. *Indian Journal of Microbiology*, 53(4), 485–487. <https://doi.org/10.1007/s12088-013-0415-y>
- Tropea, C., Piazza, Y., & Greco, L. S. L. (2010a). Effect of long-term exposure to

- high temperature on survival, growth and reproductive parameters of the “redclaw” crayfish *Cherax quadricarinatus*. *Aquaculture*, 302(1–2), 49–56. <https://doi.org/10.1016/j.aquaculture.2010.01.027>
- Tropea, C., Piazza, Y., & Greco, L. S. L. (2010b). Effect of long-term exposure to high temperature on survival, growth and reproductive parameters of the “redclaw” crayfish *Cherax quadricarinatus*. *Aquaculture*, 302(1–2), 49–56. <https://doi.org/10.1016/j.aquaculture.2010.01.027>
- Urdaci, M. C., Pinchuk, I. V., State, P., & Medical, H. (2018). *PA. July*.
- Valipour, A., Nedaei, S., Noori, A., Khanipour, A. A., & Hoseinifar, S. H. (2019). Dietary *Lactobacillus plantarum* affected on some immune parameters, air-exposure stress response, intestinal microbiota, digestive enzyme activity and performance of narrow clawed crayfish (*Astacus leptodactylus*, Eschscholtz). *Aquaculture*, 504(February), 121–130. <https://doi.org/10.1016/j.aquaculture.2019.01.064>
- Verschuere, L., Rombaut, G., Sorgeloos, P., & Verstraete, W. (2000). Probiotic Bacteria as Biological Control Agents in Aquaculture. *Microbiology and Molecular Biology Reviews*, 64(4), 655–671. <https://doi.org/10.1128/mubr.64.4.655-671.2000>
- Vijayan, K. K., Bright Singh, I. S., Jayaprakash, N. S., Alavandi, S. V., Somnath Pai, S., Preetha, R., Rajan, J. J. S., & Santiago, T. C. (2006). A brackishwater isolate of *Pseudomonas* PS-102, a potential antagonistic bacterium against pathogenic vibrios in penaeid and non-penaeid rearing systems. *Aquaculture*, 251(2–4), 192–200. <https://doi.org/10.1016/j.aquaculture.2005.10.010>
- Wang, A., Ran, C., Wang, Y., Zhang, Z., Ding, Q., Yang, Y., Olsen, R. E., Ringø, E., Bindelle, J., & Zhou, Z. (2019). Use of probiotics in aquaculture of China—a review of the past decade. *Fish and Shellfish Immunology*, 86, 734–755. <https://doi.org/10.1016/j.fsi.2018.12.026>
- Wang, C., Chuprom, J., Wang, Y., & Fu, L. (2020). Beneficial bacteria for aquaculture: nutrition, bacteriostasis and immunoregulation. *Journal of Applied Microbiology*, 128(1), 28–40. <https://doi.org/10.1111/jam.14383>
- Wang, Y. C., Hu, S. Y., Chiu, C. S., & Liu, C. H. (2019). Multiple-strain probiotics appear to be more effective in improving the growth performance and health status of white shrimp, *Litopenaeus vannamei*, than single probiotic strains. *Fish and Shellfish Immunology*, 84(September 2018), 1050–1058. <https://doi.org/10.1016/j.fsi.2018.11.017>
- Webster, C. D., Thompson, K. R., Muzinic, L. A., Yancey, D. H., Dasgupta, S., Xiong, Y. L., Rouse, D. B., & Manomaitis, L. (2004). A preliminary assessment of growth, survival, yield, and economic return of australian red claw crayfish, *Cherax quadricarinatus*, stocked at three densities in earthen ponds in a cool, temperate climate. *Journal of Applied Aquaculture*, 15(3–4), 37–50. https://doi.org/10.1300/J028v15n03_03
- Wu, D. L., Liu, Z. Q., Huang, Y. H., Lv, W. W., Chen, M. H., Li, Y. M., & Zhao, Y. L. (2018). Effects of cold acclimation on the survival, feeding rate, and non-specific immune responses of the freshwater red claw crayfish (*Cherax quadricarinatus*). *Aquaculture International*, 26(2), 557–567. <https://doi.org/10.1007/s10499-018-0236-4>

- Zhang, Q., Li, L., Lu, H., Meng, L., Zeng, Q., Wang, R., Wang, D., Tong, T., Liu, Y., & Yang, H. (2025). Effects of *Lactobacillus plantarum* supplementation on growth performance, digestive enzyme activity, antioxidant capacity, immune response, and intestinal health in red claw crayfish (*Cherax quadricarinatus*). *Aquaculture Reports*, 44, 103077. <https://doi.org/10.1016/J.AQREP.2025.103077>
- Zhang, Q., Meng, L., Li, J., Li, L., Zeng, Q., Wang, R., Wang, D., Tong, T., Liu, Y., & Yang, H. (2025). Effects of *Rhodotorula mucilaginosa* on Growth, Antioxidant, and Immune Function, and Toll/Imd and JAK-STAT Signaling Pathways in Red Claw Crayfish (*Cherax quadricarinatus*). *Aquaculture Nutrition*, 2025(1). <https://doi.org/10.1155/anu/4904293>
- Zhang, Z. L., Li, J. J., Xing, S. W., Lu, Y. P., Zheng, P. H., Li, J. T., Hao, C. G., Xu, J. R., Xian, J. A., Zhang, L. M., & Zhang, X. X. (2024). A newly isolated strain of *Bacillus subtilis* W2Z exhibited probiotic effects on juvenile red claw crayfish, *Cherax quadricarinatus*. *Aquaculture*, 585(October 2023), 740700. <https://doi.org/10.1016/j.aquaculture.2024.740700>
- Zharchynska, V. S., Hrynevych, N. Y., Жарчинська, В. С., & Гриневич, Н. Є. (2022). *Scientific Messenger of Lviv National University of Veterinary Medicine and Biotechnologies . Series : Agricultural sciences Improving the technology of growing crustaceans the example of redclaw crayfish Cherax quadricarinatus Удосконалення технології пі. 24(96), 16–23.* <https://doi.org/10.32718/nvlvet>
- Zhou, M., Wang, A. L., & Xian, J. A. (2011). Variation of free amino acid and carbohydrate concentrations in white shrimp, *Litopenaeus vannamei*: Effects of continuous cold stress. *Aquaculture*, 317(1–4), 182–186. <https://doi.org/10.1016/j.aquaculture.2011.04.033>
- Zhou, Y., Li, S., Pang, Q., & Miao, Z. (2020). *Bacillus amyloliquefaciens* BLCC1-0238 Can Effectively Improve Laying Performance and Egg Quality Via Enhancing Immunity and Regulating Reproductive Hormones of Laying Hens. *Probiotics and Antimicrobial Proteins*, 12(1), 246–252. <https://doi.org/10.1007/s12602-019-9524-1>
- Zokaeifar, H., Balcázar, J. L., Saad, C. R., Kamarudin, M. S., Sijam, K., Arshad, A., & Nejat, N. (2012). Effects of *Bacillus subtilis* on the growth performance, digestive enzymes, immune gene expression and disease resistance of white shrimp, *Litopenaeus vannamei*. *Fish and Shellfish Immunology*, 33(4), 683–689. <https://doi.org/10.1016/j.fsi.2012.05.027>