

DAFTAR PUSTAKA

- Abdassah, M. 2017. Nanopartikel dengan gelas ionik. *Jurnal Farmaka*, 15(1), 45–52.
- Affandi, R. & Tang, M. 2002. *Fisiologi Hewan Air*. Jakarta (ID): Unri Press.
- Afrianto E, Liviawati E. 2005. *Pakan Ikan dan Perkembangannya*. Yogyakarta.
- Alagawany, M., Abdelnour, S. A., Farag, M. R., Elnesr, S. S., El-Kholy, M. S., & Abd El-Hack, M. E. 2020. Nutritional applications of nanotechnology in poultry with special references to minerals. in natural feed additives used in the poultry industry (pp. 262–284). Bentham Science Publishers. <https://doi.org/10.2174/9789811488450120010019>
- Anggadiredja, J. T., Zatnika, A., Purwato, H., & Istini, S. 2008. *Rumput Laut, Pembudidayaan, Pengolahan, dan Pemasaran Komoditas Perikanan Potensial*. Penebar Swadaya: Jakarta.
- Ardita, N., Budiharjo, A., Lusi, S., & Sari, A. 2015. Pertumbuhan dan rasio konversi pakan ikan nila (*Oreochromis niloticus*) dengan penambahan prebiotik. *Bioteknologi*, 12(1), 16–21. <https://doi.org/10.13057/biotek/c120103>
- Badan Standarisasi Nasional. 2005. *Air dan air limbah - Bagian 30: Cara uji kadar amonia dengan spektrofotometer secara fenat*. SNI 06-6989.30-2005-Jakarta.
- Badan Standarisasi Nasional. 2009. *Produksi ikan nila (*Oreochromis niloticus* Bleeker) kelas pembesaran di kolam air tenang*. SNI 7550-2009-Jakarta.
- Badan Standarisasi Nasional. 2018. *Pakan buatan ikan nila (*Oreochromis spp.*)*. SNI 7242 :2018-Jakarta.
- Basir, B., Nursyahrani, J., & Apriliani, I. 2022. Optimasi kinerja udang vaname (*Litopenaeus vannamei*) dengan suplementasi daun kelor dan probiotik pada pakan. *Jurnal Ilmu-Ilmu Perikanan Dan Budidaya Perairan*, 17(1), 78–87.
- Cheng, W., Liu, C.-H., Yeh, S.-T., & Chen, J.-C. 2004. The immune stimulatory effect of sodium alginate on the white shrimp *Litopenaeus vannamei* and its resistance against *Vibrio alginolyticus*. *Fish Shellfish Immunology*, 17, 41–51.
- Dahuri, R. 2003. *Paradigma Baru Pembangunan Indonesia Berbasis Kelautan*. Orasi Ilmiah Guru Besar Pengelolaan Sumberdaya Pesisir dan Kelautan. Institut Pertanian Bogor.
- Dailami, M., Rahmawati, A., Saleky, D., & Toha, A. H. A. 2021. DNA barcoding of tilapia fish from Merauke, Papua and Malang, East Java-Indonesia. *AACL Bioflux*, 14(2), 849–858.
- Darmawan, M., Fajarningsih, N. D., Sihono, S., & Irianto, H. E. 2024. Alginate application in foods and feeds. *Biopolymers in Pharmaceutical and Food Applications*, 1.

- Dawood, M. A. O., AbdEl-kader, M. F., Moustafa, E. M., Gewaily, M. S., & Abdo, S. E. 2020. Growth performance and hemato-immunological responses of Nile tilapia (*Oreochromis niloticus*) exposed to deltamethrin and feed immunobiotics. *Environmental Science and Pollution Research*, 27(11), 11608–11617. <https://doi.org/10.1007/s11356-020-07775-8>.
- Dewinta, A. F., Susetya, I. E., Khairunnisa, Suriani, M., Addina, S., & Fadhilah, A. 2023. Alginate profile, antioxidant, and antibacterial activities of brown algae *Sargassum cristaefolium* from Pane Island, North Sumatera. *Jurnal Ilmiah Perikanan dan Kelautan*, 15(2), 331–345. <https://doi.org/10.20473/jipk.v15i2.41621>
- Dube, E. 2024. Nanoparticle-enhanced fish feed: benefits and challenges. *Fishes*, 9(8). <https://doi.org/10.3390/fishes9080322>
- Effendie, M. I. 1997. *Biologi Perikanan*. Yayasan Pustaka Nusantara, Yogyakarta.
- Effendie, M. I. 2002. *Biologi Perikanan* (2nd ed.) Yayasan Pustaka Nusantara, Yogyakarta.
- Eidelman, K., Gudkov, D., Segbefia, O., Ageev, E., Krivonosov, A., & Matuhina, A. 2017. Evolution of size distribution and structure of Si and SiO₂ nanoparticles: laser-assisted formation and fragmentation. *Journal of Physics: Conference Series*, 917(3). <https://doi.org/10.1088/1742-6596/917/3/032027>
- El-Din, F. N., Hegab, M. H., Younis, A., & Aly, W. 2023. Seasonal and spatial variations in feeding on the plankton patterns for the Nile tilapia, *Oreochromis niloticus*, (Linnaeus, 1758) off the Nile course in Aswan, Egypt. *Egyptian Journal of Aquatic Biology and Fisheries*, 27(1), 481–493. <https://doi.org/10.21608/ejabf.2023.288246>
- Fajardo, C., Martinez-Rodriguez, G., Blasco, J., Mancera, J. M., Thomas, B., & De Donato, M. 2022. Nanotechnology in aquaculture: applications, perspectives and regulatory challenges. *Aquaculture and Fisheries*, 7(2), 185–200. <https://doi.org/10.1016/j.aaf.2021.12.006>
- Guiry, M. 2016. The Seaweed Site: information on marine algae. Diakses 05 April 2025 <http://www.seaweed.ie/additives/e-number.php>.
- Gunadi B., Febrianti, R., Lamanto. 2010. Keragaan pencernaan pakan tenggelam dan terapung untuk ikan lele dumbo (*Clarias gariepinus*) dengan dan tanpa aerasi. *Prosiding Forum Inovasi Teknologi Akuakultur*. Subang
- Guo, S., Liang, Y., Liu, L., Yin, M., Wang, A., Sun, K., Li, Y., & Shi, Y. 2021. Research on the fate of polymeric nanoparticles in the process of the intestinal absorption based on model nanoparticles with various characteristics: Size, surface charge and pro-hydrophobics. *Nanobiotechnol*, 19(32).
- Hafezieh, M., Ajdari, D., Ajdehakosh Por, A., & Hosseini, S. H. 2014. Using Oman Sea *Sargassum illicifolium* meal for feeding white leg shrimp *Litopenaeus vannamei*.

Iranian Journal of Fisheries Sciences, 13(1), 73–80.

- Hamad, M. I., Damsgaard, C., Munubi, R. N., & Skov, P. V. 2024. Acid-base disturbances and effects on oxygen uptake rates in nile tilapia (*Oreochromis niloticus*) following acute and prolonged CO₂ exposure. *Aquaculture*, 741038. <https://doi.org/10.1016/j.aquaculture.2024.741038>
- Handajani, H., & Widodo, H. 2010. *Nutrisi Ikan*. Penebar Swadaya, Malang. 163.
- Hastuti, S., Supriyono, E., Mokoginta, I., & Subandiyono. 2003. Respon glukosa darah ikan gurami (*Osphronemus gouramy, Lac.*) terhadap stres perubahan suhu lingkungan. *Jurnal Akuakultur Indonesia*, 2(2), 73–77.
- Hudzaifi, A. A. 2020. Pengaruh Disk Rotation Speed dan Diameter Grinding Ball dengan Metode Planetary Ball Mill Terhadap Karakteristik Nanopartikel ZnO. Repository.Unej.Ac.Id. <https://repository.unej.ac.id/handle/123456789/103596>
- Hui, T. H., Peng, K. L. K., Huan, L. J., Wei, L. B., Hing, R. L. B., Beng, J. K. T., & Yeo, D. C. J. 2020. The non-native freshwater fishes of Singapore: An annotated compilation. *Raffles Bulletin of Zoology*, 68, 150–195. <https://doi.org/10.26107/RBZ-2020-0016>
- Hutagalung, H. 2004. *Karbohidrat*. Universitas Sumatera Utara. Medan.
- Ibrahim, P. S., Setyobudiandi, I., & Sulistiono. 2017. Hubungan panjang bobot dan faktor kondisi ikan selar kuning (*Selaroides leptolepis*) di perairan Selat Sunda. *Jurnal Ilmu Teknologi Kelautan Tropis*, 9(2), 577–584.
- Isnansetyo, A., Irpani, H. M., Wulansari, T. A., & Kasanah, N. 2014. Oral administration of alginate from a tropical brown seaweed, *Sargassum* sp. to. *Aquacultura Indonesiana*, 15(1), 14–20.
- Isnawati, N., Sidik, R., & Mahasri, G. 2015. Potensi serbuk daun pepaya untuk meningkatkan efisiensi pemanfaatan pakan, rasio efisiensi protein dan laju pertumbuhan pada budidaya ikan nila (*Oreochromis niloticus*). *Jurnal Ilmiah Perikanan dan Kelautan*, 7(2), 121–124.
- Jisr, N., Younes, G., Sukhn, C., & El-Dakdouki, M. H. 2018. Length-weight relationships and relative condition factor of fish inhabiting the marine area of the Eastern Mediterranean city, Tripoli-Lebanon. *Egyptian Journal of Aquatic Research*, 299–305. <https://doi.org/10.1016/j.ejar.2018.11.004>
- Kementerian Kelautan dan Perikanan. 2023. Data statistik kementerian kelautan dan perikanan. <https://portaldata.kkp.go.id/portals/datastatistik/prodikan/summary> Diakses 15 Septembr 2024
- Khazaidan, & Mikdarullah. 2017. Analisis beberapa bahan pakan ikan secara proksimat. *Jurnal Buletin Teknik Litkayasa Akuakultur*, 15(2), 83–88.
- Kordi, M. G. H. 2013. *Budidaya Nila Unggul*. Jakarta. PT. Agro Media Pustaka.

- Kuswoyo, T. 2023. Peningkatan respon imun non-spesifik , ekspresi gen imun , dan ketahanan penyakit pada ikan nila merah (*Oreochromis* sp.) melalui pemberian sodium alginat dari *Padina Australis*. Jurnal Ilmiah perikanan Indonesia
- Łabowska, M. B., Michalak, I., & Detyna, J. 2019. Methods of extraction, physicochemical properties of alginates and their applications in biomedical field - A review. Open Chemistry, 17(1), 738–762. <https://doi.org/10.1515/chem-2019-0077>
- Liu, H., H., L., Che, X., & Zhang, Y. 2013. Performance of sequencing microbead biofilters in a recirculating aquaculture system. Aquacultural Engineering, 52, 80–86.
- Lukman, Mulyana, & Mumpuni. 2014. Efektivitas pemberian akar tuba (*Derris elliptica*) terhadap lama waktu kematian ikan nila (*Oreochromis niloticus*). Jurnal Pertanian, 22–31.
- Machrizal, R., Khairul, K., Nasution, J., Dimenta, R. H., & Harahap, A. 2019. Distribution and length-weight relationships of hilsa shad *tenuosa* ilisha in the Bilah River, Labuhanbatu Regency, North Sumatera Province, Indonesia. Aceh Journal of Animal Science, 4(1), 42–49.
- Makmur, A. 2013. Laju pertumbuhan dan kelulushidupan ikan maanvis (*Pterophyllum scalare*) dengan kombinasi pakan yang berbeda. Journal of Chemical Information and Mode, 53(9), 1689–1699.
- Mohanraj, V. J., & Chen., Y. 2006. Nanoparticles : A Review. Tropical Journal of Pharmaceutical Research, 5(1).
- Morton, A., & Routledge, R. D. 2006. Fulton’s condition factor: is it a valid measure of sea lice impact on juvenile salmon. North American Journal of Fisheries Management, 26(1), 56–62.
- Mudiarti, L., Setiyowati, D., Kursistiyanto, N., & Alimin, N. 2023. Pengaruh penambahan alginat dalam pakan terhadap performa pertumbuhan dan efisiensi pemanfaatan pakan udang vannamei (*Litopenaeus vannamei*). Jurnal Ilmiah Jurusan Budidaya Perairan, 8(1), 13–19.
- Mulyasari, Taufik, I., Setijaningsih, L., & Subaryono. 2021. Effect of agar and alginate on growth performance and levels of leukocytes and erythrocytes of Tilapia *Oreochromis niloticus*. IOP Conference Series: Earth and Environmental Science, 860(1). <https://doi.org/10.1088/1755-1315/860/1/012034>
- Nagarajan, R. 2008. Nanoparticles: Building blocks for nanotechnology. acs symposium series, 996, 2–14. <https://doi.org/10.1021/bk-2008-0996.ch001>
- 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>

- Nor El Deen, A. I. E., & Mona, S. Z. 2010. Impact of climatic changes (oxygen and temperature) on growth and survival rate of nile tilapia (*Oreochromis niloticus*). Report and Opinion, 2(12), 192–195.
- Nur'aina, Y. P. 2023. Pengaruh Penambahan Tepung Bekicot Pada Pakan Terhadap Pertumbuhan dan Kelangsungan Hidup Ikan Nila (*Oreochromis niloticus*). Universitas Pendidikan Indonesia. Skripsi.
- Nurdiana, F. 2010. Simulasi dengan Metode Monte Carlo untuk Proses Pembuatan Nano Material Menggunakan Ball Mill. Fakultas MIPA Universitas Indonesia.
- Obirikorang, K. A., Ofori, A. G. A., & Gyampoh, B. A. 2020. Dominance hierarchies within different size groupings of nile tilapia (*Oreochromis niloticus*) and effects on growth and physiological responses. African Zoology, 55(3). <https://doi.org/10.1080/15627020.2020.1756909>
- Okon, E.M., Okocha, R.C., Taiwo, A.B., Michael, F.B., Bolanle, A.M. 2023. Dynamics of co-infection in fish: a review of pathogen-host interaction and clinical outcome. Fish and Shellfish Immunology Reports, 4, 100096.
- O. Omweno, J., Getabu, A., Omondi, R., & S. Orina, P. 2022. Water Quality Effects on Growth and Survival of *Oreochromis jipe* and *Oreochromis niloticus* Species in Aquaculture. In Water Quality - New Perspectives. IntechOpen. <https://doi.org/10.5772/intechopen.106361>
- Pakidi, C. S., & Suwoyo, H. S. 2016. Potensi dan pemanfaatan bahan aktif alga cokelat *Sargassum* sp. Octopus, 6(1), 551–562.
- Pangestyastuti, I., Suminto, & Pinandoyo. 2017. Pengaruh vitamin C dan probiotik dalam pakan terhadap efisiensi pemanfaatan pakan, pertumbuhan dan kelulushidupan ikan nila (*Oreochromis niloticus*). Journal of Aquaculture Management and Technology, 6(3), 113–122.
- Pargiyanti, P. 2019. Optimasi waktu ekstraksi lemak dengan metode soxhlet menggunakan perangkat alat mikro soxhlet. Indonesian Journal of Laboratory, 1(2), 29. <https://doi.org/10.22146/ijl.v1i2.44745>
- Pebrina, D.A.A., Wijayanti, N.P.P., Sudaryatma, P.E., Octovianus. 2022. Respon imun ikan nila (*Oreochromis niloticus*) yang terinfeksi bakteri (*Aeromonas hydrophila*) dengan penambahan vitamin C pada pakan. Journal of Marine and Aquatic Sciences, 8 (2): 173-178.
- Pereira, R., Tojeira, A., Vaz, D. C., Mendes, A., & Bártolo, P. 2011. Preparation and characterization of films based on alginate and aloe vera. International Journal of Polymer Analysis and Characterization, 16(7), 449–464. <https://doi.org/10.1080/1023666X.2011.599923>
- Pietoyo, A., Nurjanah, I., Prabowo, D. G., Sudino, D., & Tarigan, R. R. 2022. Penambahan larutan daun pepaya (*Carica papaya* Linn) pada pakan komersial

terhadap pertumbuhan dan sintasan ikan nila nirwana (*Oreochromis niloticus*). Samakia : Jurnal Ilmu Perikanan, 13(2). <https://doi.org/10.35316/jsapi.v13i2.1448>

- Prasetyawan, I. B., Maslukah, L., & Rifai, A. 2017. Pengukuran sistem karbon dioksida (CO₂) sebagai data dasar penentuan fluks karbon di perairan Jepara. Buletin Oseanografi Marina, 6(1), 9. <https://doi.org/10.14710/buloma.v6i1.15736>
- Pratiwy, F. M., Kohbara, J., Dhahiyat, Y., & Sunardi. 2017. Effectiveness of the self-feeding method on growth performance of Nile tilapia, *Oreochromis niloticus*. Aquaculture Science, 65(4), 367–375.
- Puspaningtyas, D. E., Sari, P. M., Kusuma, N. H., & Helsius SB, D. 2019. Analisis potensi prebiotik growol: kajian berdasarkan perubahan karbohidrat pangan. Gizi Indonesia, 42(2), 83. <https://doi.org/10.36457/gizindo.v42i2.390>
- Putri, K. H. 2011. Pemanfaatan Rumput Laut Coklat (*Sargassum* sp.) Sebagai Serbuk Minuman Pelangsing Tubuh. Fakultas Perikanan. IPB University. Master Thesis.
- Rachmawati, D., & Samidjan, I. 2018. Suplementasi Ekstrak Nanas Pada Pakan Terhadap Pemanfaatan Pakan dan Pertumbuhan Udang Vaname (*Litopenaeus vannamei*) Upaya Untuk Meningkatkan Produksi. Prosiding Seminar Nasional Kelautan Dan Perikanan IV 2018, 278–284.
- Rasyid, A. 2010. Ekstraksi natrium alginat dari alga coklat *Sargassum echinocarphum*. Oseanologi dan Limnologi Di Indonesia, Jakarta, 8.
- Setiyowati, D., Aryono, B., Zainuddin, M., Puspita, M., & Andrean, A. R. 2022. Pemanfaatan *Sargassum* sp. secara enzimatis dalam pakan terhadap konsumsi pakan, efisiensi pemanfaatan pakan dan pertumbuhan ikan nila salin (*Oreochromis* sp.). Journal of Marine Research, 11(3), 521–528. <https://doi.org/10.14710/jmr.v11i3.35006>
- Rumondang, A., Huda, M. A., & Butar Butar, M. L. 2023. Effectiveness of viterna supplements in feed to speed growth and minimize feed conversion rate in Batak fish seeds (*Neolissochilus thienemanni*). Acta Aquatica: Aquatic Sciences Journal, 10(3), 243. <https://doi.org/10.29103/aa.v10i3.12217>
- Rustadi. 2018. Manajemen Akuakultur Tawar. Gadjah Mada University Press. Yogyakarta.
- Sahara, R., Herawati, V. E., & Sudaryono., A. 2015. Penambahan tepung alga coklat (*Sargassum* sp.) dalam pakan terhadap pertumbuhan dan efisiensi pemanfaatan pakan benih lele (*Clarias* sp.). Journal of Aquaculture Management and Technology, 4(2), 1–8.
- Satyarsa, A. B. S. 2019. Studi Pustaka : Potensi fucoidan dari rumput laut coklat (*Sargassum* sp.) sebagai inovasi terapi pada kanker payudara. Journal of Medicine and Health, 2(3), 909–919.

- Septiana, A. T., & Asnani, A. 2012. Kajian sifat fisikokimia ekstrak rumput laut coklat. *Agrointek*, 6(1), 22–28.
- Sihombing, D. wulandari, Ghifari, M. A., Haikal, F., Sajahtra, S. M., Basriwijaya, K. M. Z., & Saragih, F. H. 2024. Pengaruh suplemen pakan terhadap kesehatan dan pertumbuhan sapi pedaging. *Botani : Publikasi Ilmu Tanaman dan Agribisnis*, 2(1), 290–295. <https://doi.org/10.62951/botani.v2i1.205>
- Singh, K. K., & Bhattacharjee, S. 2007. Study on the Effect of High Energy Ball Milling (Nano Material Process) on the Microstructure and Mechanical Properties of a (Al-Si-Fe-Cu) Alloy. National Institute of Technology. Disertasi
- Stickney, R. R. 1979. Principles of Warm Water Aquaculture. Wiley International Science.
- Subagan, K. N. G. D., Suhendra, L., & Wartini, N. M. 2020. Karakteristik bubuk alginat dari alga coklat *Sargassum sp.* pada perlakuan waktu dan suhu maserasi. *Jurnal Rekayasa dan Manajemen Agroindustri*, 8(1), 105. <https://doi.org/10.24843/jrma.2020.v08.i01.p11>.
- Sugih, F.H. 2005. Pengaruh Penambahan Probiotik dalam Pakan Komersil terhadap Pertumbuhan Benih Ikan Gurami (*Osphronemus gourami Lac.*). Fakultas Perikanan dan Ilmu Kelautan. Universitas Padjajaran. Skripsi.
- Tacon, A. G. J. 1993. Feed ingredients for warmwater fish: fish-meal and other processed feedstuffs. In *FAO Fisheries Circular 856.Rome.FAO* (pp. 64 pp-64 pp). <http://agris.fao.org/agris-search/search.do?recordID=XF19940061076>
- Tenga, M. R. T., Tangguda, S., & Kusuma, N. P. D. 2023. Manajemen pakan pada kegiatan pendederan ikan nila merah (*Oreochromis niloticus*) di Laboratorium Penguji Kesehatan Ikan dan Lingkungan Muntilan, Jawa Tengah. *Fisheries : Jurnal Perikanan Dan Ilmu Kelautan*, 5(2), 47–54.
- Tengjaroenkul, B., Smith, B. J., Caceci, T., & Smith, S. A. 2000. Distribution of intestinal enzyme activities along the intestinal tract of cultured nile tilapia, *Oreochromis niloticus* L. *Aquaculture*, 182(3-4), 317-327.
- Triastinurmiatiningsih, Ismanto, & Ertina. 2011. Variasi Morfologi dan Anatomi *Sargassum spp.* di Pantai Bayah Banten. 11(2), 1–10.
- Van Doan, H., Hoseinifar, S. H., Tapingkae, W., & Khamtavee, P. 2017. The effects of dietary kefir and low molecular weight sodium alginate on serum immune parameters, resistance against *Streptococcus agalactiae* and growth performance in nile tilapia (*Oreochromis niloticus*). *Fish and Shellfish Immunology*, 62, 139–146.
- Wahib, & Isnansetyo, A. 2020. Peningkatan Sistem Kekebalan Humoral dan Pertumbuhan pada Ikan Nila Merah (*Oreochromis sp.*) dengan Pemberian Alginat dari *Sargassum sp.* dan Asam Amino secara Oral. Universitas Gadjah Mada. Skripsi.

- Watanabe, T. 1988. Fish Nutrition and Mariculture. Japan, JICA Textbook, 233.
- Widyantoko, W., Pinandoyo, & Herawati, V. 2015. Optimalisasi penambahan tepung rumput laut coklat (*Sargassum sp.*) yang berbeda dalam pakan terhadap pertumbuhan dan kelulushidupan juvenil udang windu (*Penaeus monodon*). Journal of Aquaculture Management and Technology, 2(4), 9.
- Winarno, F. G. 1990. Teknologi Pengolahan Rumput Laut. Pustaka Sinar Harapan.
- Winberg, P., Ghosh, D., & Tapsell, L. 2009. Seaweed culture in integrated multi-trophic aquaculture nutritional benefits and systems for Australia. University of Wollongong. Rural Research and Development Corporation, 09, 32.
- Yarahmadi, M. H. A., Nafisi, M., M., N., Elabd, H., Sotoudeh, E., Morshedi, V., V., M., & Mahboub, H. 2023. Dietary sodium alginate effect on growth, digestion, body composition, antioxidant capacity, and mucous immune response in Yellowfin Sea Bream, *Acanthopagrus latus*. Annals of Animal Science, 23(4), 1169–1175.
- Yu, H.-G., H.-G., Y., Zheng, H., Li, Y., Y., L., & Yi, Y. 2012. CLSM method for examining alginate effect on in vivo lipolysis. Wuhan Ligong Daxue Xuebao/Journal of Wuhan University of Technology, 34(6), 124–127.
- Yunizal. 2004. Teknologi Pengolahan Alginat. Pusat Riset Pengolahan Produk dan Sosial Ekonomi Kelautan dan Perikanan.
- Zahin, N., Anwar, R., Tewari, D., Kabir, M. T., Sajid, A., & Mathew, B. 2020. Nanoparticles and its biomedical applications in health and diseases: special focus on drug delivery. Environmental Science and Pollution Research, 27, 19151–19168.
- Zalukhu, J., Fitriani, M., & Sasanti, A. D. 2016. Pemeliharaan ikan nila dengan padat tebar berbeda pada budidaya sistem akuaponik. Jurnal Akuakultur Rawa Indonesia, 4(1), 80–90.
- 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>