

DAFTAR PUSTAKA

- Abbasi AM, Iqbal J, Khan MA, Shah, MH., 2013, Health risk assessment and multivariate apportionment of trace metals in wild leafy vegetables from Lesser Himalayas, Pakistan, *Ecotox Environ. Saf.*, 92, 237–244
- Abernathy, CO., Thomas, DJ., Calderon, RL., 2003, Health effects and risk assessment of arsenic, *J Nutr*, 133:1536–1538
- Ahmad, Yahya, 2011, Model Pertumbuhan Ikan Layur (*Trichiurus lepturus*) di Palabuhanratu, Jawa Barat, *PT*, 1(1).
- Ali, H., Khan, E., dan Ilahi, I., 2019, Environmental Chemistry and Ecotoxicology of Hazardous Heavy Metals: Environmental Persistence, Toxicity, and Bioaccumulation, *J. of Chem.*, 19, 1-14.
- Amiard-Triquet, C., and J. C. Amiard. 1998, *Influence of Ecological Factors on Accumulation of Metal Mixtures. In Metal Metabolism in Aquatic Environments*, edited by W. J. Langston and M. Bebianno, 351–386. London: Chapman and Hall.
- Anonim, 2002, *Official Methods of Analysis of AOAC International*, AOAC International.
- Anonim, 2015, *Batas Maksimum Cemaran Logam Berat dalam Pangan Olahan*, Peraturan BPOM, Jakarta.
- Arslan, Z., dan D.H. Secor, 2008, High Resolution Micromill Sampling for Analysis of Fish Otoliths by ICP-MS: Effects of Sampling and Specimen Preparation on Trace Element Fingerprints, *Mar. Environ. Res.*, 66, 364–371.
- Astani, Z.F., Jelodar, H.T. and Fazli, H., 2018, Studying the accumulation of heavy metals (Fe, Zn, Cu and Cd) in the tissue (muscle, skin, gill and gonad) and its relation with fish (*Alosa braschinkowi*) length and weight in Caspian Sea coasts. *J. Aquac. Mar. Biol*, 7, 308-312.
- Badan Pusat Statistik, 2020, Direktori Industri Pengolahan Besar dan Sedang Daerah Istimewa Yogyakarta, BPS DIY, Yogyakarta.
- Belitz, H.-D., Grosch, W., dan Schieberle, P., 2009, *Food Chemistry*, 4th revised and extended Edition, Springer-Verlag, Heidelberg.

- Budiyanto, Fitri, Lestari, Fahmi, 2015, Bioakumulasi Merkuri Dalam Daging Dan Hati Ikan Pari Dari Teluk Jakarta, *OLDI*, 41(2), 233-244.
- Boran M dan Altinok , 2010, A Review of Heavy Metals in Water, Sediment and Living Organisms in the Black Sea, *Turkish J. Fish. Aquat. Sci.*, 10, 565-572.
- Canli M and Atli G., 2002, The relationships between heavy metal (Cd, Cr, Cu, Fe, Pb, Zn) levels and the size of six Mediterranean fish species, *Environ. Pollut.*, 121, 129–136.
- Cerneia, N., Hegera, Z., Zítka, O., Adama, V., Kizeka, R., 2014, Amino acids and their interactions with heavy metal,. *J. Metallomics Nanotechnol.* 1, pp 49 -52.
- Chawla, G., Ranjan, C., 2016, Principle, Instrumentation, and Applications of UPLC: a novel technique of Liquid Chromatography, *O. Chem. J.*, 3, 1-16.
- Chen, B., Liang, X., Xu, W., Huang, X. and Li, X., 2012, The changes in trace metal contamination over the last decade in surface sediments of the Pearl River Estuary, South China, *Sci. Total. Environ.*, 439, 141-149.
- Chen, Z.; Han, S.; Zheng, P.; Zhou, D.; Zhou, S.; Jia, G., 2020, Effect of oral exposure to titanium dioxide nanoparticles on lipid metabolism in Sprague-Dawley rats, *Nanoscale*, 12, 5973–5986.
- Chen, Z.; Zhou, D.; Zhou, S.; Jia, G., 2019, Gender difference in hepatic toxicity of titanium dioxide nanoparticles after subchronic oral exposure in Sprague-Dawley rats. *J. Appl. Toxicol.*, 39, 807–819.
- Cahyani, Nica, Batu, Djamar T.F.L., Sulistiono, 2016, Kandungan Logam Berat Pb, Hg, Cd, dan Cu pada Daging Ikan Rejung (*Sillago sihama*) di Estuari Sungai Donan, Cilacap, Jawa Tengah, *JPHPI*, 19(3), 267-276.
- Cao, X.; Han, Y.; Gu, M.; Du, H.; Song, M.; Zhu, X.; Ma, G.; Pan, C.; Wang, W.; Zhao, E., 2020, Foodborne Titanium Dioxide Nanoparticles Induce Stronger Adverse Effects in Obese Mice than Non-Obese Mice: Gut Microbiota Dysbiosis, Colonic Inflammation, and Proteome Alterations, *Small*, 16(36), 2001858.
- Connel, D.W., dan GJ., Miller, 2006, *Kimia dan Ekotoksikologi Pencemaran. Y. Koestoer (Penerjemah)*, Universitas Indonesia Press, Jakarta.

- Darmono, 2005, *Logam Dalam Sistem Biologi Makhluk Hidup*, Universitas Indonesia Press, Jakarta.
- Edward, E., 2019, Pengamatan Kadar Logam Berat Merkuri (Hg) Dan Tembaga (Cu) Pada Daging Ikan Di Teluk Kao, Halmahera, *Jurnal Pro-Life: Jurnal Pendidikan Biologi, Biologi, Dan Ilmu Serumpun*, 6(2), 122-135.
- Enserink, E. L., J. L. Maas-Diepeveen, dan C. J. Van Leeuwen, 1991, Combined effects of metals: an ecotoxicological evaluation, *Water Res.*, 25, 679-687.
- Farkas, A., J. Salánki, and A. Specziár., 2003, Age and Size specific Patterns of Heavy Metals in the Organs of Freshwater Fish *Abramis brama* L. Populating a low contaminated Site, *Water Res.*, 37(5), 959–964.
- Forti E, Salovaara S, Cetin Y, Bulgheroni A, Tessadri R, Jennings P, Prieto P., 2011, In vitro evaluation of the toxicity induced by nickel soluble and particulate forms in human airway epithelial cells, *Toxicol in Vitro*, 25(2), 454-461.
- Gaol, N.N.L., 2017, Perbandingan Morfometri Kerang Bulu (*Anadara antiquata*) di Belawan dan Tanjung Pura Sumatera Utara, *Skripsi*, Fakultas Biologi, Universitas Medan Area, Medan.
- Gusrina, 2008, *Budidaya Ikan Jilid 2*, PT Macanan Jaya Cemerlang, Klaten.
- Gintarė, Sauliutė, dan Gintaras, Svecevičius, 2015, Heavy metal interactions during accumulation via direct route in fish: a review, *Zoology and Ecology*, 25:1, 77-86.
- Ginting, A. Patana, P. dan Nurmatias. 2014, Kandungan Logam Berat Timbal (Pb) pada Air, Sedimen dan Kerang Darah (*Anadara granosa*) di Pantai Belawan Provinsi Sumatera Utara, *Jurnal Aquacoastmarine*, 3(1), 24-32.
- Grasso, A., Ferrante, M., Zuccarello, P., Filippini, T., Arena, G., Fiore, M., Cristaldi, A., Conti, G.O. and Copat, C., 2020, Chemical Characterization and Quantification of Titanium Dioxide Nanoparticles (TiO₂-NPs) in Seafood by Single-Particle ICP-MS: Assessment of Dietary Exposure, *Int. J. Environ. Res. Public Health*, 17(24), 9547.

- Hajeb, P., Jinap, S., 2012, Reduction of Mercury from Mackerel Fillet Using Combined Solution of Cysteine, EDTA, and Sodium Chloride, *J. Agric. Food Chem.*, 60, 6069-6076.
- Hananingtyas, I., 2017, Bahaya Kontaminasi Logam Berat Merkuri (Hg) Dalam Ikan Laut Dan Upaya Pencegahan Kontaminasi Pada Manusia, *Al-Ard : Jurnal Teknik Lingkungan*, 2(2), 38-45.
- Hananingtyas, I., 2017, Studi pencemaran kandungan logam berat timbal (Pb) dan kadmium (Cd) pada ikan tongkol (*Euthynnus sp.*) di Pantai Utara Jawa, *Biotropic*, 1(2), 41-50.
- Harmesa, Lestari, Budiyo, F., 2020, Distribusi Logam Berat dalam Air Laut dan Sedimen di Perairan Cimanuk, Jawa Barat, Indonesia, *OLDI*, 5(1), 19-32.
- Hendry, Rickaby, REM., de Hoog, JCM., Weston K, 2008, Cadmium and phosphate in coastal Antarctic seawater: Implications for Southern Ocean nutrient cycling, *Mar Chem. Elsevier B.V.*, 112(3-4), 149–57.
- Indriana, L.F., Anggoro, S. and Widowati, I., 2012, July. Studi Kandungan 13 Logam Berat Menggunakan Metode ICP MS pada Ikan yang Terdapat di Pasar Ikan Larantuka Flores Timur, *Seminar Nasional Penelitian Perikanan dan Kelautan*.
- Irhamni, Pandia, Setiaty, Purba, Edison, Hasan, W., 2017, Serapan Logam Berat Esensial dan Non Esensial pada Air Lindi TPA Kota Banda Aceh dalam Mewujudkan Pembangunan Berkelanjutan, *Serambi Engineering*, 2(3), 135-140.
- Kalogeropoulos, N., Karavoltsos, S., Sakellari, A., Avramidou, S., Dassenakis, M. and Scoullos, M., 2012, Heavy metals in raw, fried and grilled Mediterranean finfish and shellfish, *Food Chem. Toxicol.*, 50(10), 3702-3708.
- Kilgour, B., 1991, Cadmium uptake from cadmium-spiked sediments by four freshwater invertebrates, *Bull. Environ. Contam. Toxicol.*, 47, 70–75.
- Kojadinovic J, Potier M, dan Le Corre M, 2007, Mercury content in commercial pelagic fish and its risk assessment in the Western Indian, *Sci. Total. Environ.*, 366(2), 688-700.

- Kumari, B., Kumar, V., Sinha, A.K., Ahsan, J., Ghosh, A.K., Wang, H. and DeBoeck, G., 2017, Toxicology of arsenic in fish and aquatic systems, *Environ. Chem. Lett.*, 15(1), 43-64.
- Kusnoputranto, H., 1995, *Pengantar Toksikologi Lingkungan*. Direktorat Tinggi, Jakarta.
- Li, Y., Liu, H., Zhou, H., Ma, W., Han, Q., Diao, X. and Xue, Q., 2015, Concentration distribution and potential health risk of heavy metals in *Macra veneriformis* from Bohai Bay, China, *Mar. Pollut. Bull.*, 97(2), 528-534.
- Luoma, S.N., Rainbow, P.S., 2008, Metal Contamination in aquatic environments: science and lateral management, *J. of Fish Biology*, 75(7), 1911-1912.
- Miller, J. N., dan Miller, J. C., 2005, *Statistics and Chemometrics for Analytical Chemistry*, Pearson/Prentice Hall, United Kingdom.
- Mohamed AE, Rashed MN, Mofty A. 2003. Assessment of essential and toxic elements in some kinds of vegetables, *Ecotox. Environ. Saf.*, 55(3):251–260.
- Mohammed, E., Mohammed, T., dan Mohammed, A., 2017, Optimization of an Acid Digestion Procedure for The Determination of Hg, As, Sb, Pb and Cd in Fish Muscle Tissue, *MethodsX*, 4, 513–523.
- Muwarni, S., 2019, Analysis of Heavy Metals in Coral Fish Species in Sea Natural Reserves of Krakatau Islands, *Int. J. Psychophysiol.*, 1(2), 107-116.
- Najamuddin, Prartono, T., Sanusi, H.S. & Nurjaya, I.W. 2016. Distribution And Behaviour of Dissolved And Particulate Pb And Zn In Jeneberang Estuary, Makassar. *Jurnal Ilmu dan Teknologi Kelautan Tropis*, 8(1):11–28.
- Okati, N., Moghadam, M.S. and Einollahipeer, F., 2021, Mercury, arsenic and selenium concentrations in marine fish species from the Oman Sea, Iran, and health risk assessment, *Toxicol. Environ. Health Sci.*, 13(1), 25-36.
- Ondang, H.M., Ticoalu, F.J. and Saranga, R., 2020, Analisis Kandungan Logam Berat Ikan Pelagis Kecil R. kanagurta, Decapterus sp dan S. crumenophthalmus Yang Tertangkap di Perairan Sekitar Bitung, *Jurnal Bluefin Fisheries*, 1(2), pp.41-48.

- Opuene, K., Okafor, E. C., & Agbozu, I. E. (2009). Bioaccumulation Of Heavy Metals In The Catfish *Chrysichthys Nigrodigitatus* From Taylor Creek, Southern Nigeria, *Glob. J. Pure Appl.*, 15(2), 187-193.
- Öztürk, M., Özözen, G., Minareci, O. and Minareci, E., 2009, Determination of heavy metals in fish, water and sediments of Avsar Dam Lake in Turkey, *Iran. J. Environ. Health. Sci. Eng.*, 6(2), 73-80.
- Patrick, L., 2003, Toxic metals and antioxidants: part II. The role of antioxidants in arsenic and cadmium toxicity, *Altern. Med. Rev*, 8, 106–128.
- Peng, K., Luo, C., Lou, L., Li, X, dan Shen, Z., 2008, Bioaccumulation of heavy metals by the aquatic plants *Potamogeton pectinatus* L. and *Potamogeton malaianus* Miq. and their potential use for contamination indicators and in wastewater treatment, *Sci. Total. Environ.*, 392(1), 22-29.
- Puspasari, Reny, 2006, Logam dalam Ekosistem Perairan, *BAWAL*, 1(2), 43-47.
- Puspitasari, R., 2007, Laju polutan dalam ekosistem laut, *Oseana*, 32(2), 21-28.
- Purbonegoro, T., Suratno, 2020, Health Risk Assessment Related to Total Mercury (THg) Concentration in Clam (*Periglypta crispata*) from Kepulauan Seribu Regency, Indonesia, *Squalen Bull. Of Mar. and Fish. Postharvest and Biotech*, 15(1), 11-17.
- Ridhowati, S., 2013, *Mengenal Pencemaran Ragam Logam*, Graha Ilmu, Yogyakarta.
- Rosihan, Adhani, Husaini, 2017, *Logam berat Sekitar Manusia*, Lambung Mangkurat University Press, Banjarmasin.
- Sahubawa, Latif, Khakim, Nurul, Lasindrang, M., 2015, Kajian Sebaran Potensi Ekonomi Sumber Daya Kelautan Di Pantai Selatan Daerah Istimewa Yogyakarta Sebagai Upaya Percepatan Investasi, *Jurnal Teknosains*, 4(2), 101-120.
- Salnikow K, Kasprzak KS. 2005, Ascorbate depletion: A critical step in nickel carcinogenesis, *Environ. Health Perspect.*, 113(5), 577-584.
- Sauliutė, G. and Svecevičius, G., 2015, Heavy metal interactions during accumulation via direct route in fish: a review, *Zool. Ecol.*, 25(1), 77-86.

- Sarwono, J, 2006, *Analisis Data Penelitian Menggunakan SPSS*, Penerbit ANDI, Yogyakarta.
- Sfakianakis, D.G., Renieri, E., Kentouri, M. dan Tsatsakis, A.M., 2015, Effect of heavy metals on fish larvae deformities: a review, *Environ Res research*, 137, 246-255.
- Soegianto, A. 2008, Bioaccumulation of Heavy Metals in Some Commercial Animals Caught from Selected Coastal Waters of East Java, Indonesia, *RJABS*, 4(6), 881-885.
- Soemirat, J., 2005, *Toksikologi Lingkungan*, Gadjah Mada University Press, Yogyakarta.
- Storelli dan Marcotrigiano, 2005, Accumulation of mercury, cadmium, lead and arsenic in sword sh and blue n tuna from the Mediterranean Sea: A comparative study, *Mar Pollut Bull*, 50(9), 1004-1009.
- Schneider, T.; Westermann, M.; Gleis, M, 2017, In vitro uptake and toxicity studies of metal nanoparticles and metal oxide nanoparticles in human HT29 cells. *Arch. Toxicol*, 91, 3517–3527.
- Selin, N.E., 2009, Global Biogeochemical Cycling of Mercury: A Review, *Annu. Rev. Environ. Resour*, 34(1), 43-63.
- Siahaya, Rosni, A., 2020, Profil Asam Amino dan Asam Lemak Ikan Julung (Hemiramphus Sp.) Kering Di Desa Keffing Kabupaten Seram Bagian Timur, *JUSTA*, 1(1), 75-93.
- Silva, Alexandre O.F. da; Martinez, Cláudia B.R., 2014, Acute effects of cadmium on osmoregulation of the freshwater teleost *Prochilodus lineatus*: Enzymes activity and plasma ions, *Aquat. Toxicol*, 156, 161–168.
- Stankovic, S., Jovic, M., Stankovic, A.R., dan Katsikas, L., 2012, *Heavy Metals in Seafood Mussels. Risks for Human Health*, Belgrade, Serbia.
- Suratno, Cordova, M.R., Arinda, S., 2017, Kandungan Merkuri dalam Ikan Konsumsi di Wilayah Bantul dan Yogyakarta, *OLDI*, 2(1), 15-23.
- Suratno, S., Puspitasari, R., Purnadayanti, Z. and Sandra, N., Metals Accumulation in Muscle Tissues and Digestive Contents of *Periglypta reticulata* (Kerang Geton) from Lancang Island, Jakarta, *Indones. J. Chem.*, 20(5), 1131-1142.

- Suratno, S., Purnadayanti, Z., Novianty, H., dan Oktaviyani, S., Total Mercury (THg) Concentration in Indian Scad (*Decapterus russelli*) and Torpedo Scad (*Megalaspis cordyla*) from Southern Waters of Binuangun, Banten, *Indones. J. Chem.*, 21(2), 435–442.
- Suseno, H., Panggabean, M., 2011, Merkuri : Spesiasi dan Bioakumulasi Pada Biota Laut, *Jurnal Teknologi Pengelolaan Limbah*, 10(1), 66-78.
- Tanjung, R.H.R., Suwito., Purnamasari, V., dan Suharno, 2019, Analisis Kandungan Logam Berat Pada Ikan Kakap Putih (*Lates calcarifer*) di Perairan Mimika Papua, *Jurnal Ilmu Lingkungan*, 17(2), 256-263.
- Underwood, EJ, dan N.F Suttle, 2001, *The Mineral Nutrition of Livestock*, CABI Publishing, USA.
- Vusvitasari, Resi, Nugroho, Sigit, dan Akbar, Syahrul, 2008, Kajian Hubungan Koefisien Korelasi Pearson I, Spearman-rho (ρ), Kendall-Tau (τ), Gamma (G) dan Somers (dYX), *Jurnal Gradien*, 4(2), 372-381.
- Warlina, 2004, *Pencemaran Air: Sumber, Dampak dan Penanggulangannya*, Pasca Sarjana IPB, Bogor.
- Wood, C.M., 2012, An introduction to metals in fish physiology and toxicology: basic principles, *Fish physiology*, 31, 1-51.
- Yalcin, M.G., Narin, I. and Soylak, M., 2008, Multivariate analysis of heavy metal contents of sediments from Gumusler creek, Nigde, Turkey, *Environ. Geol.*, 54(6), 1155-1163.
- Yap, C.K., Ismail, A., Tan, S.G., dan Omar, H. 2003, Accumulation, depuration and distribution of cadmium and zinc in the green lipped mussel *Perna viridis* (Linnaeus) under laboratory condition, *Hydrobiologia*, 498, pp. 151-160.
- Yolanda, S., Rosmaidar, Nazaruddin, Armansyah, T., Balqis, U., and Fahrma, Y., 2017, Pengaruh paparan timbal (Pb) terhadap histopatologis insang ikan nila (*Oreochromis niloticus*), *Jurnal Ilmiah Mahasiswa Veteriner*, 1(4), 736-741.
- Yousif, R., Choudhary, M.I., Ahmed, S. And Ahmed, Q., 2021, Bioaccumulation of heavy metals in fish and other aquatic organisms from Karachi Coast, Pakistan, *Nusantara Bioscience*, 13(1), 73-84.

Y.J. Yi, S.H. Zhang, 2012, The relationships between fish heavy metal concentrations and fish size in the upper and middle reach of Yangtze River. , *Procedia Env. Sci.*, 13, 1699 – 1707.

Zelditch, M.L., Swiderski, D.L., Swiderski, Sheets, H.D., dan Fink, W.L., 2004, *Geometric Morphometrics for Biologist: A Primer*, Elsevier Academic Press, United Kingdom.