DAFTAR PUSTAKA

Abarshi, M. M., Dantala, E. O. and Mada, S. B. (2017) *Bioaccumulation of Heavy Metals In Some Tissues of Croaker Fish From Oil Spilled Rivers of Niger Delta Region, Nigeria*, Asian Pacific Journal Of Tropical Biomedicine, 7(6), Pp. 563–568. Doi: 10.1016/J.Apjtb.2017.05.008.

Adji, S. S., Sunarsih, D. dan Hamda, S. (2008) *Pencemaran Logam Berat Dalam Tanah Dan Tanaman Serta Upaya Menguranginya*, Seminar Nasional Kimia XVIII, Pp. 1–19. Available At: Http://Repository.Ut.Ac.Id/Id/Eprint/7289.

Akbar, A. W., Daud, A. dan Mallongi, A. (2014) *Analisis Risiko Lingkungan Logam Berat Cadmium (Cd) Pada Sedimen Air Laut Di Wilayah Pesisir Kota Makassar*, *Bagian Kesehatan Lingkungan Fakultas Kesehatan Masyarakat. Universitas Hasanuddin*.

Ali, A. A, Elazein, E. M. and Alian, M. A (2011) *Investigation of Heavy Metals Pollution In Water, Sediment And Fish At Red Sea – Jeddah Coast- Ksa At Two Different Locations*, 1(12), Pp. 630–637.

Alinnor, I. and Obiji, I. (2010) *Assessment of Trace Metal Composition In Fish Samples From Nworie River*, *Pak J Nutr 9 (1):81-85.*, Pp. 81–85. Doi: Http://Dx.Doi.Org/10.3923/Pjn.2010.81.85.

Alluri, H. K. *et al.* (2007) *Biosorption: An Eco-Friendly Alternative For Heavy Metal Removal*, African Journal Of Biotechnology, 6(25), Pp. 2924–2931. Doi: 10.5897/Ajb2007.000-2461.

Alyani, D. F. *et al.* (2017) *Kandungan Kadar Logam Berat Kadmium (Cd) Dalam Kerang Darah (Anadara granosa) Dari Pantai Bangkalan Dan Upaya Penurunannya*, 6(1), Pp. 8–12.

Amalia, R. (2016) *Analisis Hubungan Kadar Timbal (Pb), Zinc Protoporphyrin Dan Besi (Fe) Dalam Sampel Darah Operator Spbu Di Kota Semarang*.

Amelia, F. *dkk.* (2019) *Biokonsentrasi Faktor Logam Berat Pada Kerang Dari Perairan Batam, Kepulauan Riau, Indonesia*, Educhemia (Jurnal Kimia Dan Pendidikan), 4(2), P. 152. Doi: 10.30870/Educhemia.V4i2.5529.

Amsyari, F. (1981) *Prinsip-Prinsip Dan Dasar Statistik Dalam Perencanaan Kesehatan*. Jakarta: Ghalia Indonesia.

Artati (2018) *Analisis Kadar Timbal (Pb) Pada Air Yang Melalui Saluran Pipa Penyalur Perusahaan Daerah Air Minum (PDAM) Makassar*, Jurnal Media Analis Kesehatan, 1(2), Pp. 47–55. Doi: 10.32382/Mak.V8i2.848.

Asante, F. (2014) *Bioaccumulation Of Heavy Metals In Water, Sediments And Tissues Of Some Selected Fishes From The Red Volta, Nangodi In The Upper East Region Of Ghana*, British Journal Of Applied Science & Technology, 4(4), Pp. 594–603. Doi: 10.9734/Bjast/2014/5389.

Ashraf, M. A., Maah, M. J. and Yusoff, I. (2010) *Study of Banana Peel (Musa sapientum) As A Cationic Biosorben*, American-Eurasian J', Agric & Environ*. Sci*, 8(1), Pp. 7–17.

Ashraf, M. A., Mahmood, K. and Wajid, A. (2011) *Study of Low Cost Biosorbent For Biosorption Of Heavy Metals*, 9, Pp. 60–68.

Badan Standardisasi Nasional (2009) *Sni 7387:2009. Batas Maksimum Cemaran Logam Berat Dalam Pangan*, *Batas Maksimum Cemaran Logam Berat Dalam Pangan*. Available At: Https://Sertifikasibbia.Com/Upload/Logam_Berat.Pdf.

Baki, M. A. *et al.* (2018) *Concentration Of Heavy Metals In Seafood (Fishes, Shrimp, Lobster And Crabs) and Human Health Assessment In Saint Martin Island, Bangladesh*, Ecotoxicology And Environmental Safety, 159(November 2017), Pp. 153–163. Doi: 10.1016/J.Ecoenv.2018.04.035.

Bana, Vera Stianita Sarce., L. Indah M Yulianti. dan Pranata F. Sinung (2014) *Potensi Pektin Kulit Pisang Kepok (Musa Paradisiaca Forma Typica) Untuk Menyerap Logam Berat Kadmium (Cd)*, Pp. 1–7. Available At: Https://Core.Ac.Uk/Download/Pdf/35391244.Pdf.

Bar, A. dkk. (2014) *Variasi Ukuran Kerang Darah (Anadara granosa) di Perairan Pesisir Kecamatan Genuk Kota Semarang*, Journal of Marine Research, 3(2), Pp. 122–131. Doi: 10.14710/Jmr.V3i2.4973.

Barlas, N. E. (2002) *Determination of Organochlorine Pesticide Residues In Water And Sediment Samples In Inner Anatolia In Turkey*, Bulletin of Environmental Contamination and Toxicology, 69(2), Pp. 236–242. Doi: 10.1007/S00128-002-0052-3.

Barokah, G. R. dkk. (2019) *Kontaminasi Logam Berat (Hg, Pb, Dan Cd) Dan Batas Aman Konsumsi Kerang Hijau (Perna viridis) Dari Perairan Teluk Jakarta Di Musim Penghujan* (5), Pp. 95–106.

Begum, A. et al. (2009) *Heavy Metal Pollution And Chemical Profile Of Cauvery River Water*, E-Journal Of Chemistry, 6(1), Pp. 47–52. Doi: 10.1155/2009/154610.

Bowden, K. . (1983) *Physical Oceanography Of Estuaries*. Chichester: Ellis Horwood Lim.

Bradl, H. (2005) *Heavy Metals In The Environment: Origin, Interaction And Remediation*. Elsevier.

Bränvall, M. L. *et al.* (2001) *Four Thousand Years Of Atmospheric Lead Pollution In Northern Europe: A Summary From Swedish Lake Sediments*, Journal of Paleolimnology, 25(4), Pp. 421–435. Doi: 10.1023/A:1011186100081.

Brite, M., J, D. dan Kurniastuty (2006) *Rekayasa Pengujian Depurasi Kekerangan Dalam Upaya Meningkatkan Keamanan Bagi Konsumen*, *Jurnal Departemen Kelautan Dan Perikanan. Jakarta*.

Broom., M., J. (1985) *The Biology And Culture Of Marine Bivalve Molluscs Of The Genus Anadara*. Manila: International Center For Living Aquatic Resources Management.

Budiastuti, P., Rahadjo, M. dan Dewanti, N. (2016) *Analisis Pencemaran Logam Berat Timbal Di Badan Sungai Babon Kecamatan Genuk Semarang,* Jurnal Kesehatan Masyarakat (E-Journal), 4(5), Pp. 119–118.

Buwono, I. D. (2005) *Upaya Penurunan Kandungan Logam Hg (Merkuri) Dan Pb (Timbal) Pada Kerang Hijau (Mytilus viridis) Dengan Konsentrasi Dan Waktu Perendaman $Na_2CaEDTA$ Yang Berbeda*, Jurnal Bionatura, 7(3).

Carson, R. (2002) *Silent Spring*. Houghton Mifflin Harcourt.

Castro, R. S. D. *et al.* (2011) *Banana Peel Applied To The Solid Phase Extraction Of Copper And Lead From River Water: Preconcentration Of Metal Ions With A Fruit Waste*, *I*ndustrial And Engineering Chemistry Research, 50(6), Pp. 3446–3451. Doi: 10.1021/Ie101499e.

Chauhan, A. et al*.* (2016) *Comparative Study Of Different Parts Of Fruits Of Musa Sp. on The Basis of Their Antioxidant Activity*, *Der Pharmacia Lettre*, 8(15), Pp. 88–100.

Chojnacka, K. And Mikulewicz, M. (2014) *Bioaccumulation, Encyclopedia Of Toxicology: Third Edition*, 1, Pp. 456–460. Doi: 10.1016/B978-0-12-386454-3.01039-3.

Al Chusein, A. dan Ibrahim, R. (2012) *Lama Perendaman Daging Kerang Darah (Anadara Granosa) Rebus Dalam Larutan Alginat Terbadap Pengurangan Kadar Kadmium*, Jurnal Saintek Perikanan, 8(1), Pp. 19–25.

Connell, Des W., Miller, G. J. (2006) *Kimia Dan Ekotoksikologi Pencemaran*. Jakarta: Ui-Press.

Cullen, G., Dines, A. And Kolev, S. (2005) *Lead Ipcs Intox-Data Bank, London: National Poison Information Service*.

Dallinger, R. (1993) *Strategies Of Metal Detoxification In Terrestrial Invertebrates*, Ecotoxicology Of Metals In Invertebrates, 245.

Darmono (1995) *Logam Dalam Sistem Biologi Mahkluk Hidup*. Jakarta: Ui-Press.

Darmono (2010) *Lingkungan Hidup Dan Pencemaran : Hubungannya Dengan Toksikologi Senyawa Logam*. Cetakan 20. Jakarta: Ui-Press. Available At: Http://Lib.Ui.Ac.Id/Detail?Id=7488.

Deross Fj (1997) *Smelters And Metal Reclaimenrs*, *Occupational, Industrial, And Environmental Toxicology*, Pp. 291–3330.

Duffus, J. H. (2002) *"Heavy Metals" - A Meaningless Term?* (Iupac Technical Report)', *Pure And Applied Chemistry*, 74(5), Pp. 793–807. Doi: 10.1351/Pac200274050793.

Edu, E. A. B., Udensi, O. U. And Ononyume, M. O. (2015) *Bio-Monitoring Of Mangroves Sediments And Tissues For Heavy Metal Accumulation In The Mangrove Forest Of Cross River Estuary*, Journal Of Agriculture And Ecology Research International, Pp. 79–87.

Effendi, H. (2003) *Telaah Kualitas Air Bagi Pengelolaan Sumberdayaperairan*. Yogyakarta: Kanisius.

Eliaz, I., Weil, E. And Wilk, B. (2007) *Integrative Medicine And The Role Of Modified Citrus Pectin/Alginates In Heavy Metal Chelation And Detoxification - Five Case Reports*, *Forschende Komplementarmedizin*, 14(6), Pp. 358–364. Doi: 10.1159/000109829.

Endrinaldi (2010) 'Logam-Logam Berat Pencemar Lingkungan Dan Efek Terhadap Manusia', *Studi Literatur*, 4 No. 1, Pp. 42–46.

Van Esch, G. J. (1977) *Aquatic Pollutant And Their Potential Ecological Effect In Aquatic Pollution. Transformation And Biological Effect Ohutzinger, Ih Van Lelyucid And B C J Zoetemen*, In *Eds Proceed Of He 2nd Int Symp On Aquatic Pollutans, Amsterdampergamon Press, New York*, Pp. 1–12.

Facetti, J., Dekov, V. M. And Van Grieken, R. (1998) *Heavy Metals In Sediments From The Paraguay River: A Preliminary Study*, Science Of The Total Environment, 209(1), Pp. 79–86. Doi: 10.1016/S0048-9697(97)00299-4.

Fang, Z.-Q., Cheung, R. Y. H. And Wong, M. H. (2003) *Heavy Metals In Oysters, Mussels And Clams Collected From Coastal Sites Along The Pearl River Delta, South China.*, Journal Of Environmental Sciences (China), 15(1), Pp. 9–24.

Fergusson, J. E. (1990) *The Heavy Elements : Chemistry, Environmental Impact And Health Effects*. New York: Pergamon Press.

Friligos, Nicholas. (1985) *Nutrient Conditions In The Euboikos Gulf (West Aegean)*, 16(11), Pp. 7–10.

Ghosh, M. And Singh, S. P. (2005) *A Review On Phytoremediation Of Heavy Metals And Utilization Of It's By Products*, Asian J Energy Environ, 6(4), P. 18.

Goldstein Bd And Hm Kipen (2000) *Hematologic Disorder*, In Levy And Wegman (Ed.) *Occupational Health Recognizing Preventing Work-Related Diseases. 3rd Ed,*. 4th Editon. Philadelphia: Lippincott Williams & Wilkins.

Gomez, Kwanchai A.; Gomez, A. A. (2010) *Prosedur Statistik Untuk Penelitian Pertanian*. Edisi Ii. Jakarta: Ui Press.

Gusnita, D. (2012) *Pencemaran Logam Berat Timbal (Pb) Di Udara Dan Upaya Penghapusan Bensin Bertimbal*, *Berita Dirgantara*, 13(3), Pp. 95–101.

Güzel, M. And Akpınar, Ö. (2019) *Valorisation Of Fruit By-Products: Production Characterization Of Pectins From Fruit Peels*, *Food And Bioproducts Processing*, 115(June), Pp. 126–133. Doi: 10.1016/J.Fbp.2019.03.009.

Habashi, F. (2009) *Gmelin And His Handbuch*, Bulletin For The History Of Chemistry, 34(1), P. 30. Available At: Http://Acshist.Scs.Illinois.Edu/Bulletin_Open_Access/V34-1/V34-1 P30-

31.Pdf.
Hakim, A., Subekt, S. dan Sugijanto, N. E. N. (2016) *Studi Penurunan Logam Berat Cu2+ Dan Cd2+ Dengan Menggunakan Limbah Kulit Pisang Kepok (Musa acuminate)*, *Jurnal Biosains Pascasarjana*, 18(1), Pp. 24–36.
Hamzah, F. dan Setiawan, A. (2010) *Akumulasi Logam Berat Pb, Cu, Dan Zn Di Hutan Mangrove Muara Angke, Jakarta Utara*, 2(2), Pp. 41–52.
Hanum, F., Tarigan, M. A. dan Kaban, I. M. D. (2012) *Ektraksi Pektin Dari Kulit Buah Pisang Kepok (Musa Sapientum)*, Jurnal Teknik Kimia, 1(2), Pp. 21–26.
Happi Emaga, T. *Et Al.* (2008) *Characterisation Of Pectins Extracted From Banana Peels (Musa Aaa) Under Different Conditions Using An Experimental Design*, Food Chemistry, 108(2), Pp. 463–471. Doi: 10.1016/J.Foodchem.2007.10.078.
Hariyati, M. N. (2006) *Ekstraksi Dan Karakterisasi Pektin Dari Limbah Proses Pengolahan Jeruk Pontianak (Citrus nobilis var microcarpa)*, Institut Pertanian Bogor. Bogor.
Harper, A. A. And Shannon, M. W. (2007) *Lead, Other Metals, And Chelation Therapy*, In Comprehensive Pediatric Hospital Medicine. Elsevier, Pp. 1127–1134.
Haspullah, R. *et al.* (2018) *Analisis Kandungan Logam Berat Timbal (Pb), Kromium (Cr), Dan Kadmium (Cd) Pada Kerang Darah Anadara Granosa L. Di Wilayah Pesisir Kabupaten Pangkep*, Pp. 1–10. Available At: Http://Digilib.Unhas.Ac.Id/Uploaded_Files/Temporary/Digitalcollection/Ymq4ywq3yjq2ntnmowyznwu2nwzjmtjhm2ezndvkotc2mgu4m2y5yw==.Pdf.
Herawati, D. dan Soedaryo (2017) *Pengaruh Perendaman Kerang Darah (Anadara granosa) Dengan Perasan Jeruk Nipis Terhadap Kadar Merkuri (Hg) Dan Kadmium (Cd)*', 1(1).
Hewet, E. (2011) *Banana Peel Heavy Metal Water Filter*. Available At: Http://Users.Wpi.Edu.
Hidayah, A. M., Purwanto dan Soeprobowati, T. R. (2014) *Biokonsentrasi Faktor Logam Berat Pb, Cd, Cr dan Cu Pada Ikan Nila (Oreochromis niloticus Linn .) Di Karamba Danau Rawa Pening*, 16(1).
Hidayat, A. And Zainal, A. U. (2019) *Studi Kandungan Logam Berat Timbal (Pb) Dan Cadmium (Cd) Dalam Kerang Hijau (Perna Viridis) Di Muara Sungai Tallo Kota Makassar Tahun 2016*, Prosiding Kolokium Doktor Dan Seminar Hasil Penelitian Hibah, 1(1), Pp. 13–24. Doi: 10.22236/Psd/1113-2458.
Hilmi, M. Z., Swastawati, F. And Anggo, A. D. (2017) *Soaking Effect Of Different Types Of Orange Against Decreased Content Of Heavy Metals Lead (Pb) And Chromium (Cr) On The Green Mussels (Perna viridis*

linn)', *J. Peng. & Biotek*, 6(2).
Hong, S. *Et Al.* (2014) *Greenland Ice Evidence Of Hemispheric Lead Pollution Two Millennia Ago By Greek And Roman Civilizations*, 265(5180), Pp. 1841–1843.
Hou, S. *et al.* (2013) *A Clinical Study Of The Effects Of Lead Poisoning On The Intelligence And Neurobehavioral Abilities Of Childre*n, Theoretical Biology And Medical Modelling, 10(1), Pp. 1–9. Doi: 10.1186/1742-4682-10-13.
Hutagalung, dkk (1997) *Metode Analisis Air Laut, Sedimen Dan Biota. Buku 2*. Jakarta: Puslitbang Oseanologi. Lipi.
Hutagalung, H. (1991) *Pencemaran Laut Oleh Logam Berat Dalam Beberapa Perairan Indonesia.* Jakarta: Oceanologi Lipi.
Hutagalung, H. P. (1984) *Logam Berat Dalam Lingkungan Laut*, *Pewarta Oceana Ix*, 1, Pp. 45–59.
Ilboudo, O. *et al.* (2012) *Targeting Structural Motifs of Flavonoid Diglycosides Using Collision-Induced Dissociation Experiments On Flavonoid/Pb^{2+} Complexes*, *European Journal Of Mass Spectrometry,* 18(5), Pp. 465–473. Doi: 10.1255/Ejms.1199.
Ina, Anita dkk (2013) *Pemanfaatan Pektin Kulit Buah Jeruk Siam*, Pp. 1–10.
Irawati, Y., Lumbanbatu, D. T. . dan Sulistiono, S. (2018) *Logam Berat Kerang Totok (Geloina erosa) Di Timur Segara Anakan Dan Barat Sungai Donan, Cilacap*, Jurnal Pengolahan Hasil Perikanan Indonesia, 21(2), P. 233. Doi: 10.17844/Jphpi.V21i2.22843.
Ivanciuc, T., Ivanciuc, O. And Klein, D. J. (2006) *Modeling The Bioconcentration Factors And Bioaccumulation Factors Of Polychlorinated Biphenyls With Posetic Quantitative Super-Structure/Activity Relationships (Qssar)*, Molecular Diversity, 10(2), Pp. 133–145.
Izza, A. T., Hidayat, N. dan Mulyadi, A. F. (2012) *Penurunan Kandungan Timbal (Pb) Pada Kupang Merah (Musculitas senhausia) Dengan Perebusan Asam pada Kajian Jenis Dan Konsentrasi Asam*, Teknologi Pertanian, Pp. 1–10.
Kadifkova Panovska, T., Kulevanova, S. And Stefova, M. (2005) *In Vitro Antioxidant Activity Of Some Teucrium Species (Lamiaceae)*, Acta Pharmaceutica (Zagreb, Croatia), 55(2), Pp. 207–214.
Karbassi, A. R. *et al.* (2008) *Metal Pollution Assessment Of Sediment And Water In The Shur River*, Environmental Monitoring And Assessment, 147(1), Pp. 107–116.
Kashala-Abotnes, E. *et al.* (2016) *Lead Exposure And Early Child Neurodevelopment Among Children 12–24 Months In Kinshasa, The Democratic Republic Of Congo*, European Child And Adolescent Psychiatry, 25(12), Pp. 1361–1367. Doi: 10.1007/S00787-016-0860-3.
Khalil, H. P. S. A., Alwani, M. S. And Omar, A. K. M. (2006) *Chemical*

Composition, Anatomy, Lignin Distribution, And Cell Wall Structure Of Malaysian Plant Waste Fibers, Bioresources, 1(2), Pp. 220–232. Doi: 10.15376/Biores.1.2.220-232.

Khan, S. e*t al.* (2009) *Health Risk Assessment Of Heavy Metals For Population Via Consumption Of Vegetables*, World Applied Sciences Journal, 6(12), Pp. 1602–1606.

Kupchik, L. A. *et al.* (2006) *Chemical Modification Of Pectin To Improve Its Sorption Properties.* Russian Journal of Applied Chemistry, 79(3), Pp. 457–460.

Kurniawan, T. A. *Et Al.* (2006) *Physico – Chemical Treatment Techniques For Wastewater Laden With Heavy Metals*, 118, Pp. 83–98. Doi: 10.1016/J.Cej.2006.01.015.

La-Llave-León, O. And Salas-Pacheco, J. (2020) *Effects Of Lead On Reproductive Health*, In. Doi: 10.5772/Intechopen.91992.

Lagrega, M. D., Buckingham, P. L. And Evans, J. C. (2010) *Hazardous Waste Management.* Waveland Press.

Lecoultre, T. D. (2001) *A Meta-Analysis and Risk Assessment of Heavy Metal Uptake In Common Garden Vegetables*

Lee, R., Lovatelli, A. And Ababouch, L. (2008) *Bivalve Depuration: Fundamental and Practical Aspects*. Food And Agriculture Organization Of The United Nations. Available At: Http://Www.Fao.Org/3/I0201e/I0201e00.Htm.

Libes, S. (2009) *Introduction To Marine Biogeochemistry, Second Edition*. Second Edi. London: Academic Press.

Mahardika, R., Riyadi, P. H. And Fahmi, A. S. (2016) *Pengaruh Lama Waktu Perendaman Kerang Hijau (Perna viridis) Menggunakan Buah Tomat (Lycoperdicum esculentum) Terhadap Penurunan Kadar Logam Timbal (Pb)*', *J Peng. & Biotek. Hasil Pi*, 5(4), Pp. 43–50.

Markowitz, M. (2000) 'Lead Poisoning.', *Pediatrics In Review*, 21(10), Pp. 327–335. Doi: 10.1542/Pir.21-10-327.

Martin, S. And Griswold, W. (2009) 'Human Health Effects Of Heavy Metals', *Environmental Science And Technology Briefs For Citizens*, (15), Pp. 1–6. Doi: 10.1515/Secm-2014-0078.

Mason, C. F. And Barak, N.-E. (1990) 'A Catchment Survey For Heavy Metals Using The Eel (Anguilla Anguilla)', *Chemosphere*, 21(4–5), Pp. 695–699.

Metcalf And Eddy (1991) *Watewater Engineering, Treatment, Disposal, And Reuse*. New Delhi: Mcgraw_Hill Book Company.

Mirah Dharmadewi, A.A Istri; Wiadnyana, I. G. A. G. (2019) *Analisis Kandungan Logam Berat Timbal (Pb) Dan Kadmium (Cd) Pada Kerang Hijau (Perna viridis L .)*, Pp. 161–169.

Mohapatra, D., Mishra, S. And Sutar, N. (2010) *Banana And Its By-Product Utilisation: an Overview*, *Journal Of Scientific And Industrial Research*,

69(5), Pp. 323–329.
Mohiuddin, K. M. *et al.* (2011) *Heavy Metals Contamination in Water And Sediments of an Urban River in a Developing Country*, 8(4), Pp. 723–736.
Mukhtasor (2007) *Pencemaran Pesisir Dan Laut*. Jakarta: Pt. Pradnya Paramita.
Mukono, H. J. (2010) *Toksikologi Lingkungan*. Surabaya: Airlangga University Press.
Murtini, J. T. And Ariyani, F. (2005) *Kandungan Logam Berat Kerang Darah (Anadara granosa) aan Kualitas Perairan Di Tanjung Pasir, Jawa Barat*, 11, Pp. 39–46.
Murtini, J. T., Kurniawan, A. D. And Dewi, N. (2008) *Karboksimetil Kitosan Untuk Menurunkan Kandungan Logam Berat Hg, Cd, Dan Pb Pada Kerang Hijau (Perna viridis Linn.)*, 3(1), Pp. 37–44.
Nédélec, C.; Prado, J. (1990) *Definition And Classification Of Fishing Gear*. Rome: Fao. Available At: Http://Www.Fao.Org/3/T0367t/T0367t00.Htm.
Nieboer, E. And Richardson, D. H. S. (1980) *The Replacement Of The Nondescript Term "Heavy Metals" By A Biologically And Chemically Significant Classification Of Metal Ions*, Environmental Pollution. Series B, Chemical And Physical, 1(1), Pp. 3–26. Doi: 10.1016/0143-148x(80)90017-8.
Nontji., A. (2002) *Laut Nusantara*. Jakarta: Penerbit Djambatan.
Nybakken, J. W. (2005) *Marine Biology : An Ecological Approach*. 6th Ed. San Fransisco: Person/Benyamin Cumming.
Olujimi, O. O. *et al.* (2015) *Heavy Metals Speciation And Human Health Risk Assessment At An Illegal Gold Mining Site In Igun, Osun State, Nigeria*, Journal Of Health And Pollution, 5(8), Pp. 19–32. Doi: 10.5696/I2156-9614-5-8.19.
Palar, H. (2012) *Pencemaran Dan Toksikologi Logam Berat*. Cetakan Ke. Jakarta: Rineka Cipta.
Parlak, H., Katalay, S. and Büyükisik, B. (1999) *Accumulation and Loss of Chromium By Mussels (M. galloprovincialis)*, Pp. 286–292.
Paundanan, M., Riani, E. dan Anwar, S. (2015) *Heavy Metals Contamination Mercury (Hg) And Lead (Pb) In Water, Sediment And Torpedo Scad Fish (Megalaspis cordyla L) In Palu Bay, Sentral Sulawesi*, Journal of Natural Resources And Environmental Management, 5(2), Pp. 161–168. Doi: 10.19081/Jpsl.5.2.161.
Permanawati, Y. *Et Al.* (2013) *Heavy Metal Content (Cu, Pb, Zn, Cd, And Cr) In Sea Water And Sediment In Jakarta*', *Ejournal.Mgi.ESDMGo.Id*, 11(1). Available At: Http://Ejournal.Mgi.Esdm.Go.Id/Index.Php/Jgk/Article/View/227.
Perron, N. R. And Brumaghim, J. L. (2009) *A Review Of The Antioxidant Mechanisms Of Polyphenol Compounds Related To Iron Binding*, Cell

Biochemistry and Biophysics, 53(2), Pp. 75–100. Doi: 10.1007/S12013-009-9043-X.

Pinto, R. *et al.* (2015) *Temporal Variations Of Heavy Metals Levels In Perna viridis, On The Chacopata-Bocaripo Lagoon Axis, Sucre State, Venezuela*, Marine Pollution Bulletin, 91(2), Pp. 418–423. Doi: 10.1016/J.Marpolbul.2014.09.059.

Pompeani, D. P. *et al.* (2013) *Lake Sediments Record Prehistoric Lead Pollution Related To Early Copper Production In North America*, *Environmental Science And Technology*, 47(11), Pp. 5545–5552. Doi: 10.1021/Es304499c.

Prabawati, S., Suyanti, D. And Setyabudi, A. (2008) *Teknologi Pascapanen Dan Teknik Pengolahan Buah Pisang*, Bogor: Balai Besar Penelitian Dan Pengembangan Pascapanen Pertanian Badan Penelitian Dan Pengembangan Pertanian.

Purnavita, S. dan Rahayu, L. H. (2007) *Optimasi Pembuatan Kitosan Dari Kitin Limbah Cangkang Rajungan (Portunus pelagicus) Untuk Adsorben Ion Logam Merkuri,* Reaktor, 11(1), Pp. 45–49.

Rahde, F. (1994) *Lead, Inorganic, in Lead Inorganic (Pim 301)*. Ipcs. Available At: Http://Www.Inchem.Org/Documents/Pims/Chemical/Inorglea.Htm.

Rahmawati, Hamzah, B. dan Nuryanti, S. (2015) *Analisis Kadar Timbal (Pb) Dalam Daging Kerang Bakau (Polymesoda erosa) Dan Kerang Darah (Anadara granosa) di Perairan Salule Pasangkayu Sulawesi Barat* J.Akad.Kim, 4(May), Pp. 78–83.

Raja, P. *et al.* (2009) *Heavy Metals Concentration in Four Commercially Valuable Marine Edible Fish Species From Parangipettai Coast, South East Coast of India*, International Journal of Animal and Veterinary Advances, 1(1), Pp. 10–14.

Rajeshkumar, S. and Li, X. (2018) *Bioaccumulation Of Heavy Metals In Fish Species From The Meiliang Bay, Taihu Lake, China*, *Toxicology Reports*, 5(January), Pp. 288–295. Doi: 10.1016/J.Toxrep.2018.01.007.

Renberg, I. *et al.* (2000) *Atmospheric Lead Pollution History During Four Millennia (2000 Bc To 2000 Ad) In Sweden*, Ambio, 29(3), Pp. 150–156. Doi: 10.1579/0044-7447-29.3.150.

Riani, E., Sudarso, Y. dan Cordova, M. R. (2014) *Heavy Metals Effect On Unviable Larvae Of Dicrotendipes Simpsoni (Diptera: Chironomidae), A Case Study From Saguling Dam, Indonesia*, Aquaculture, Aquarium, Conservation & Legislation, 7(2), Pp. 76–84.

Rochyatun, E., Kaisupy, M. T. dan Rozak, A. (2010) *Distribusi Logam Berat Dalam Air Dan Sedimen di Perairan Muara Sungai Cisadane*, *Makara Of Science Series*, 10(1), Pp. 35–40. Doi: 10.7454/Mss.V10i1.151.

Rochyatun, E. dan Lestari, R. A. (2005) *Kualitas Lingkungan Perairan Banten Dan Sekitarnya Ditinjau Dari Kondisi Logam Berat*, Jurnal Oseanologi

dan Limnologi, 38, Pp. 23–46.
Romero-Estévez, D. *et al.* (2020) *An Overview Of Cadmium, Chromium, and Lead Content In Bivalves Consumed By The Community of Santa Rosa Island (Ecuador) And Its Health Risk Assessment*, 8(August), Pp. 1–10. Doi: 10.3389/Fenvs.2020.00134.
Sanders, T. *et al.* (2009) *Neurotoxic Effects And Biomarkers Of Lead Exposure: A Review*, Reviews On Environmental Health, 24(1), Pp. 15–45. Doi: 10.1515/Reveh.2009.24.1.15.
Sasnita, Karina, S. and Nurfadillah (2017) *Analisis Logam Pb Pada Kerang Anadara granosa dan Air Laut Di Kawasan Pelabuhan Nelayan Gampong Deah Glumpang Kota Banda Aceh*', Jurnal Ilmiah Mahasiswa Kelautan Dan Perikanan, 2(1), Pp. 74–79.
Schiavon, M. e*t al.* (2008) *Interactions Between Chromium and Sulfur Metabolism In Brassica Juncea*, Journal of Environmental Quality, 37(4), Pp. 1536–1545. Doi: 10.2134/Jeq2007.0032.
Sembel, D. T. (2015) *Toksikologi Lingkungan*. Edition 1. Edited By A. Pramesta. Yogyakarta: Andi.
Sherly, A. dan Cahyaningrum, S. E. (2014) *Aktivasi Kulit Pisang Kepok (Musa acuminate L.) Dengan H_2SO_4 Dan Aplikasinya Sebagai Adsorben Ion Logam Cr (VI)*, Unesa Journal Of Chemistry, 3(1), Pp. 22–25.
Siddiqui, A. S. and Saher, N. U. (2021) *Interferences Of Trace Metals Between Sediment and Dotillid Crab (Ilyoplax frater) From Three Tidal Creeks, Karachi, Pakistan*, Sn Applied Sciences, 3(1), Pp. 1–14. Doi: 10.1007/S42452-020-04041-X.
Spencer, K. L. and Macleod, C. L. (2002) *Distribution And Partitioning of Heavy Metals in Estuarine Sediment Cores And Implications For The Use of Sediment Quality Standards*, Hydrology And Earth System Sciences, 6(6), Pp. 989–998. Doi: 10.5194/Hess-6-989-2002.
Sriyono (2019) *Analisis Uptake dan Depurasi Logam Timbal (Pb) Dan Kromium (Cr) Terhadap Ikan Nila (Oreochromis niloticus) Menggunakan Air Terkontaminasi*. Available At: Https://Dspace.Uii.Ac.Id/Handle/123456789/14251.
Stankovic, S. *et al.* (2011) *Heavy Metals In Seafood Mussels. Risks For Human Health*, In *Environmental Chemistry For A Sustainable World*, Pp. 311–373. Doi: 10.1007/978-94-007-2442-6.
Sturges, W. T. and Barrie, L. A. (1989) *Stable Lead Isotope Ratios In Arctic Aerosols: Evidence For The Origin Of Arctic Air Pollution*, Atmospheric Environment *(1967)*, 23(11), Pp. 2513–2519. Doi: 10.1016/0004-6981(89)90263-1.
Sugiyono (2011) *Metode Penelitian Kuantitatif Kualitatif*. Bandung: Alfabeta.
Suhartini, M. (2013) *Modifikasi Limbah Kulit Pisang Untuk Adsorben Ion Logam Mn (II) Dan Cr (VI)*, Pusat Aplikasi Teknologi Isotop Dan Radiasi (Patir) - Batan, (April 2012), Pp. 229–234.

Sukowati, A., Sutikno dan Rizal, S. (2014) '*Produksi Bioetanol Dari Kulit Pisang*, Jurnal Teknologi Dan Industri Hasil Pertanian, 19(3), Pp. 274–288.

Suprapti, N. H. (2008) *Kandungan Chromium Pada Perairan, Sedimen Dan Kerang Darah (Anadara granosa) di Wilayah Pantai Sekitar Muara Sungai Sayung Laut Jawa*, 10(2).

Supriyadi, A. dan Satuhu, S. (2008) *Pisang, Budidaya, Pengolahan Dan Prospek Pasar*. Jakarta: Penebar Swadaya.

Suryono, C. A. (2006a) *Bioakumulasi Logam Berat Melalui Sistim Jaringan Makanan Dan Lingkungan Pada Kerang Bulu Anadara Inflata*, Ilmu Kelautan: Indonesian Journal of Marine Sciences, 11(1), Pp. 19-22–22. Doi: 10.14710/Ik.Ijms.11.1.19-22.

Suryono, C. A. (2006b) *Kecepatan Filtrasi Kerang Hijau Perna Viridis Terhadap Skeletonema Sp Pada Media Tercemar Logam Berat Timbal (Pb) Dan Tembaga (Cu)*, Ilmu Kelautan: Indonesian Journal of Marine Sciences, 11(3), Pp. 153–157. Doi: 10.14710/Ik.Ijms.11.3.153-157.

Susiati, H., Arman, A. dan Susilo, Y. S. B. (2009) *Kandungan (Co, Cr, Cs, As, Sc, Dan Fe) Dalam Sedimen Di Kawasan Pesisir Semenanjung Muria*, Jurnal Pengembangan Energi Nuklir, 11(1), Pp. 6–12. Available At: Http://Jurnal.Batan.Go.Id/Index.Php/Jpen/Article/View/1430/1360.

Susilawaty, A., Amansyah, M. dan Jumiati (2015) *Peningkatan Kualitas Air Sumur Gali Berdasarkan Parameter Besi (Fe) Dengan Pemanfaatan Kulit Pisang Kepok Di Dusun Alekanrung Desa Kanrung Kabupaten Sinjai*, 7, Pp. 166–174.

Suwignyo, S. Dkk. (2005) *Avertebrata Air*. Jakarta: Penebar Swadaya.

Symonowicz, M. and Kolanek, M. (2012) *Flavonoids And Their Properties To Form Chelate Complexes*, Biotechnology and Food Sciences, 76(1), Pp. 35–41.

Takarina, N. D. *et al.* (2013) *Geochemical Fractionation Of Copper (Cu), Lead (Pb), And Zinc (Zn) In Sediment And Their Correlations With Concentrations In Bivalve Mollusc Anadara Indica From Coastal Area Of Banten Province, Indonesia*, International Journal Of Marine Science, 3.

Tapia, J. e*t al.* (2010) *Study of The Content of Cadmium, Chromium and Lead In Bivalve Molluscs Of The Pacific Ocean (Maule Region, Chile*), *Food Chemistry*, 121(3), Pp. 666–671. Doi: 10.1016/J.Foodchem.2009.12.091.

Tarigan, Z., . E. dan Rozak, A. (2010) *Kandungan Logam Berat Pb, Cd, Cu, Zn Dan Ni Dalam Air Laut Dan Sedimen Di Muara Sungai Membramo, Papua Dalam Kaitannya Dengan Kepentingan Budidaya Perikanan*, Makara of Science Series, 7(3), Pp. 119–127. Doi: 10.7454/Mss.V7i3.368.

Türkmen, M. *et al.* (2009) *Determination Of Metals In Fish Species From Aegean And Mediterranean Seas*, Food Chemistry, 113(1), Pp. 233–

237. Doi: 10.1016/J.Foodchem.2008.06.071.
U.S. EPA (2020) *Learn About Lead*. Available At: Https://Www.Epa.Gov/Lead/Learn-About-Lead.
Ulfa, A., Ekastuti, D. R. dan Wresdiyati, T. (2020) *Potensi Ekstrak Kulit Pisang Kepok (Musa Paradisiaca Forma Typica) Dan Uli (Musa Paradisiaca Sapientum) Menaikkan Aktivitas Superoksida Dismutase Dan Menurunkan Kadar Malondialdehid Organ Hati Tikus Model Hiperkolesterolemia*, Acta Veterinaria Indonesiana, 8(1), Pp. 40–46. Doi: 10.29244/Avi.8.1.40-46.
Vargas, K. K. *et al.* (2012) *Biosorption Of Heavy Metals In Polluted Water, Using Different Waste Fruit Cortex*, Physics And Chemistry Of The Earth, 37–39, Pp. 26–29. Doi: 10.1016/J.Pce.2011.03.006.
Wahyuni, M. dan Widiyanti, S. (2004) *Reduksi Kadar Merkuri Pada Kerang Hijau (Mytilus viridis) Di Teluk Jakarta Melalui Metode Asam Serta Pemanfaatannya Dalam Metode Kerupuk*, In *Prosiding Seminar Nasional Dan Temu Usaha*, Pp. 206–220.
Wang, Y., Lin, S. dan Juang, R. (2003) *Removal Of Heavy Metal Ions From Aqueous Solutions Using Various Low-Cost Adsorbents*, 102, Pp. 291–302. Doi: 10.1016/S0304-3894(03)00218-8.
Wardhana, W. A. (2004) *Dampak Pencemaran Lingkungan Edisi Revisi Iii*. Yogyakarta: Andi.
Widowati, W., Sastiono, A. dan Rumamuk, J. R. (2008) *Efek Toksik Logam Pencegahan Dan Penanggulangan Pencemaran*. Yogyakarta: Penerbit Andi.
Wijaya, D. K. (2013) *Penurunan Kadar Logam Tembaga (Cu2+) Dalam Air Dengan Menggunakan Variasi Jenis Kulit Pisang*, P. 10011.
Wong, W. W. *et al.* (2008) *Modification Of Durian Rind Pectin For Improved Biosorbent Ability*, *International Food Research Journal*, 15(3), Pp. 363–365.
Wulandari, E., Herawati, E. dan Arfiati, D. (2012) *Kandungan Logam Berat Pb Pada Air Laut Dan Tiram Saccostrea Glomerata Sebagai Bioindikator Kualitas Perairan Prigi, Trenggalek, Jawa Timur*, Journal of Fisheries and Marine Research, 1(1), Pp. 10–14.
Yap, C. K. and Al-Barwani, S. M. (2012) *A Comparative Study Of Condition Indices And Heavy Metals In Perna Viridis Populations At Sebatu And Muar, Peninsular Malaysia*, Sains Malaysiana, 41(9), Pp. 1063–1069.
Yulianto, B. *dkk.* (2019) *Heavy Metals (Cd, Pb, Cu, Zn) Concentrations In Edible Bivalves Harvested From Northern Coast Of Central Java, Indonesia*, IOP Conference Series: Earth and Environmental Science, 259(1). Doi: 10.1088/1755-1315/259/1/012005.
Zazouli, M. A. *et al.* (2006) *Study of Chromium Concentration in Tarrom Rice Cultivated in The Qaemshahr Region and its Daily Intake*, *World Applied Sciences Journal*, 1(2), Pp. 60–65.

Zhang, R. *et al.* (2015) *Source of Lead Pollution, Its Influence on Public Health and The Countermeasures*', International Journal of Health, 2(1), Pp. 1–1. Doi: 10.13130/2283-3927/4785.

KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN
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Nomor : 8497/UN4.14/PT.01.04/2020 03 November 2020
Lamp : 1 (satu) berkas
Hal : **Permohonan Izin Penelitian**

Kepada

Yth : **Gubernur Provinsi Sulawesi Selatan**
c.q. Kepala UPT P2T, BKPMD
Provinsi Sulawesi Selatan

di

Makassar

Dengan hormat kami sampaikan bahwa mahasiswa Program Pascasarjana Universitas Hasanuddin yang tersebut dibawah ini :

Nama	: Abdul Gafur
Nomor Pokok	: P1000316018
Program Pendidikan	: Doktor (S3)
Program Studi	: Ilmu Kesehatan Masyarakat

Bermaksud melakukan penelitian dalam rangka persiapan penulisan Disertasi dengan Judul "***Depurasi Arang Aktif dan Rendaman Kulit Pisang Kepok Terhadap Penurunan Kadar Logam Berat (Kadmium dan Kromium) Pada Kerang Anadara Granosa di Sungai Tallo".***

Pembimbing :

Promotor	: Prof.Dr. Anwar Daud, SKM., M.Kes.
Co-Promotor	: Prof. Anwar, SKM.,M.Sc.,Ph.D
Co-Promotor	: Dr. dr. Syamsiar S. Russeng, MS.

Waktu Penelitian : Bulan November 2020 s.d. Bulan Maret 2021
Tempat Penelitian : Kecamatan Tallo, Kelurahan Tallo, Makassar

Sehubungan dengan hal tersebut kami mohon kebijaksanaan Bapak kiranya berkenan memberi izin kepada yang bersangkutan.

Atas perkenan dan kerjasamanya diucapkan terima kasih.

Dekan

Dr. Aminuddin Syam, SKM, M.Kes., M.Med.Ed.
NIP. 19670617 199903 1 001

Tembusan :
1. Para Wakil Dekan FKM Unhas
2. Mahasiswa yang bersangkutan
3. Arsip

1 2 0 2 0 1 9 3 0 0 9 5 8 9

PEMERINTAH PROVINSI SULAWESI SELATAN

DINAS PENANAMAN MODAL DAN PELAYANAN TERPADU SATU PINTU

BIDANG PENYELENGGARAAN PELAYANAN PERIZINAN

Nomor : **9048/S.01/PTSP/2020**
Lampiran :
Perihal : **Izin Penelitian**

KepadaYth.
Walikota Makassar

di-
Tempat

Berdasarkan surat Dekan Fak. Kesehatan Masyarakat UNHAS Makassar Nomor : 8497/UN4.14/PT.01.04/2020 tanggal 03 November 2020 perihal tersebut diatas, mahasiswa/peneliti dibawah ini:

N a m a	:	**ABD.GAFUR**
Nomor Pokok	:	P1000316018
Program Studi	:	Ilmu Kesehatan Masyarakat
Pekerjaan/Lembaga	:	Mahasiswa(S3)
Alamat	:	Jl. P. Kemerdekaan Km. 10, Makassar

Bermaksud untuk melakukan penelitian di daerah/kantor saudara dalam rangka penyusunan Disertasi, dengan judul :

" DEPURASI ARANG AKTIF DAN RENDAMAN KULIT PISANG KEPOK TERHADAP PENURUNAN KADAR LOGAM BERAT (KADMIUM DAN KROMIUM) PADA KERANG ANADARA GRANOSA DI SUNGAI TALLO "

Yang akan dilaksanakan dari : Tgl. ***01 Desember 2020 s/d 01 Maret 2021***

Sehubungan dengan hal tersebut diatas, pada prinsipnya kami ***menyetujui*** kegiatan dimaksud dengan ketentuan yang tertera di belakang surat izin penelitian.
Dokumen ini ditandatangani secara elektronik dan Surat ini dapat dibuktikan keasliannya dengan menggunakan ***barcode***,
Demikian surat izin penelitian ini diberikan agar dipergunakan sebagaimana mestinya.

Diterbitkan di Makassar
Pada tanggal : 01 Desember 2020

A.n. GUBERNUR SULAWESI SELATAN
KEPALA DINAS PENANAMAN MODAL DAN PELAYANAN TERPADU SATU PINTU PROVINSI SULAWESI SELATAN
Selaku Administrator Pelayanan Perizinan Terpadu

Dr. JAYADI NAS, S.Sos., M.Si
Pangkat : Pembina Tk.I
Nip : 19710501 199803 1 004

Tembusan Yth
1. Dekan Fak. Kesehatan Masyarakat UNHAS Makassar di Makassar;
2. *Pertinggal.*

SIMAP PTSP 01-12-2020

Jl.Bougenville No.5 Telp. (0411) 441077 Fax. (0411) 448936
Website : http://simap.sulselprov.go.id Email : ptsp@sulselprov.go.id
Makassar 90231

Lampiran Surat Izin Penelitian

Kepada Yth :

KETENTUAN PEMEGANG IZIN PENELITIAN :

1. Sebelum dan sesudah melaksanakan kegiatan, kepada yang bersangkutan melapor kepada Bupati/Walikota C q. Kepala Bappelitbangda Prov. Sulsel, apabila kegiatan dilaksanakan di Kab/Kota
2. Penelitian tidak menyimpang dari izin yang diberikan
3. Mentaati semua peraturan perundang-undangan yang berlaku dan mengindahkan adat istiadat setempat
4. Menyerahkan 1 (satu) eksamplar hardcopy dan softcopy kepada Gubernur Sulsel. Cq. Kepala Badan Perencanaan Pembangunan Penelitian dan Pengembangan Daerah Prov. Sulsel
5. Surat izin akan dicabut kembali dan dinyatakan tidak berlaku apabila ternyata pemegang surat izin ini tidak mentaati ketentuan tersebut diatas.

REGISTRASI ONLINE IZIN PENELITIAN DI WEBSITE :
https://izin-penelitian.sulselprov.go.id

PEMERINTAH KOTA MAKASSAR
BADAN KESATUAN BANGSA DAN POLITIK
Jalan Ahmad Yani No 2 Makassar 90111
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Email : Kesbang@makassar.go.id Home page : **http.www.makassar.go.id**

Makassar, 10 Desember 2020

K e p a d a

Nomor : 070 / 2485-II/BKBP/XII/2020
Sifat :
Perihal : **Izin Penelitian**

Yth. CAMAT TALLO
KOTA MAKASSAR

Di –

MAKASSAR

Dengan Hormat,

Menunjuk Surat dari Kepala Dinas Penanaman Modal dan Pelayanan Terpadu Satu Pintu Provinsi Sulawesi Selatan Nomor : **9048/S.01/PTSP/2020**, Tanggal **01 Desember 2020**. Perihal tersebut di atas, maka bersama ini disampaikan kepada Bapak bahwa :

Nama	:	**ABD. GAFUR**
NIM / Jurusan	:	P1000316018/ Ilmu Kesehatan Masyarakat
Pekerjaan	:	Mahasiswa(S3) / UNHAS
Alamat	:	Jl.P. Kemerdekaan Km. 10, Makassar
Judul	:	***"DEPURASI ARANG AKTIF DAN RENDAMAN KULIT PISANG KEPOK TERHADAP PENURUNAN KADAR LOGAM BERAT (KADMIUM DAN KROMIUM) PADA KERANG ANADARA GRANOSA DI SUNGAI TALLO"***

Bermaksud mengadakan ***Penelitian*** pada Instansi / Wilayah Bapak, dalam rangka ***Penyusunan Disertasi*** sesuai dengan judul di atas, yang akan dilaksanakan mulai tanggal ***10 Desember 2020 s/d 1 Maret 2021.***

Sehubungan dengan hal tersebut, pada prinsipnya kami dapat **menyetujui dengan memberikan surat rekomendasi izin penelitian ini**.

Demikian disampaikan kepada Bapak untuk dimaklumi dan selanjutnya yang bersangkutan melaporkan hasilnya kepada Walikota Makassar Cq. Kepala Badan Kesatuan Bangsa dan Politik.

A.n.WALIKOTA MAKASSAR
KEPALA BADAN

Ir. H. JAMAING, M.Sc
Pangkat : Pembina Utama Muda
NIP : 19601231 198003 1 064

Tembusan :
1. Kepala Badan Kesatuan Bangsa dan Politik Prov. Sul – Sel. di Makassar;
2. Kepala Unit Pelaksana Teknis P2T Badan Koordinasi Penanaman Modal Daerah Prov. Sul Sel di Makassar;
3. Dekan Fak. Kesehatan Masyarakat UNHAS Makassar di Makassar;
4. *Mahasiswa yang bersangkutan;*
5. Arsip

KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN
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e-mail : fkm.unhas@gmail.com

No : 8633/UN4.14/D1.03/2020 9 Nopember 2020
Lampiran : -
Perihal : ***Permohonan Izin Penggunaan Laboratorium***

Kepada Yth : **Kepala Laboratorium Balai Pengkajian Teknologi Pertanian Sulawesi Selatan**
di
Maros

Dengan hormat, kami sampaikan bahwa mahasiswa Program Pascasarjana Universitas Hasanuddin yang tersebut dibawah ini :

Nama	: Abd. Gafur
Nim	: P1000316018
Program Pendidikan	: Doktor (S3)
Program Studi	: Kesehatan Masyarakat

Bermaksud melakukan pemeriksaan sampel pada laboratorium Balai Pengkajian Teknologi Pertanian Sulawesi Selatan. Penelitian dalam rangka persiapan penulisan disertasi dengan judul **"Depurasi Logam Berat Kadmium (Cd) dan Kromium (Cr) pada Kerang di Sungai Tallo Dengan Penggunaan Limbah Kulit Pisang Kepok"**

Sehubungan dengan hal tersebut kami mohon kebijakan Bapak/Ibu kiranya berkenan memberi izin kepada yang bersangkutan.

Atas perkenan dan kerjasamanya diucapkan terima kasih.

Dekan,

Dr.Aminuddin Syam,SKM,M.Kes,M.Med.Ed
Nip. 196706171999031001

Tembusan :
1.Wakil Dekan FKM Unhas
2.Mahasiswa yang bersangkutan

Laboratorium Tanah, Tanaman, Pupuk, Air
BADAN PENELITIAN DAN PENGEMBANGAN PERTANIAN
BALAI PENGKAJIAN TEKNOLOGI PERTANIAN SULAWESI SELATAN
Jl.Dr. Ratulangi No. 272, Kel. Allepolea, Kec. Lau, Kab. Maros Sulawesi Selatan 90514
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SCIENCE - INNOVATION - NETWORK

SURAT KETERANGAN
Nomor : 014/ TU. 210/I.12.21/07/2021

Yang bertanda tangan dibawah ini Kepala Laboratorium BPTP Sul-Sel dengan ini menerangkan bahwa :

Nama : Abd. Gafur
NIM : P1000316018
Fakultas : Kesehatan Masyarakat
Universitas : Universitas Hasanuddin
Judul Penelitian : Depurasi Pernedaman Kerang Darah (*Anadara granosa*) dengan kulit pisang kepok (*Musa acuminata*) terhadap efisiensi removal kandungan logam berat timbal (Pb) dan kromium (Cr).

Adalah Benar yang tersebut namanya diatas telah melakukan pengukuran kandungan logam berat Timbal (Pb) dan Kromium (Cr) di Laboratorium BPTP Sul-Sel untuk keperluan penelitian study Akademik.

Demikian Surat Keterangan ini dibuat untuk dipergunakan sebagaimana mestinya.

Maros, 15 Juli 2021
Kepala,

Muhammad Asri, S.Si, M.Si
Nip. 19800707 200701 1 001

Data Analisis Penelitian

Oneway

Persentase Kandungan Pb

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Kadar Pb Akhir (C1) ppm 1	Kontrol	5	.7700	.43191	.19316	.2337	1.3063	.18	1.23
	1 Sisir (995 gram)	5	1.1760	.50372	.22527	.5506	1.8014	.59	1.93
	2 Sisir (1.990 gram)	5	1.3120	.52016	.23262	.6661	1.9579	.79	2.00
	3 Sisir (2.985 gram)	5	1.0800	.34554	.15453	.6510	1.5090	.50	1.37
	Total	20	1.0845	.46545	.10408	.8667	1.3023	.18	2.00
Kadar Pb Akhir (C1) ppm 2	Kontrol	5	2.8900	1.55375	.69486	.9608	4.8192	1.55	5.54
	1 Sisir (995 gram)	5	8.0520	1.95275	.87329	5.6273	10.4767	5.45	10.81
	2 Sisir (1.990 gram)	5	14.7900	2.48252	1.11022	11.7075	17.8725	10.62	16.72
	3 Sisir (2.985 gram)	5	11.2340	4.38383	1.96051	5.7908	16.6772	6.37	15.90
	Total	20	9.2415	5.17583	1.15735	6.8191	11.6639	1.55	16.72
Kadar Pb Akhir (C1) ppm 3	Kontrol	5	1.4620	.22775	.10185	1.1792	1.7448	1.24	1.80
	1 Sisir (995 gram)	5	2.2520	.30458	.13621	1.8738	2.6302	1.89	2.66
	2 Sisir (1.990 gram)	5	2.9960	.14690	.06570	2.8136	3.1784	2.81	3.19
	3 Sisir (2.985 gram)	5	3.5640	.08295	.03709	3.4610	3.6670	3.45	3.67
	Total	20	2.5685	.83300	.18626	2.1786	2.9584	1.24	3.67
Kadar Pb Akhir (C1) ppm 4	Kontrol	5	4.1820	.24150	.10800	3.8821	4.4819	3.84	4.38
	1 Sisir (995 gram)	5	4.4740	.22468	.10048	4.1950	4.7530	4.24	4.78
	2 Sisir (1.990 gram)	5	4.8040	.20354	.09103	4.5513	5.0567	4.48	5.04
	3 Sisir (2.985 gram)	5	5.1300	.29317	.13111	4.7660	5.4940	4.81	5.59
	Total	20	4.6475	.42706	.09549	4.4476	4.8474	3.84	5.59

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Kadar Pb Akhir (C1) ppm 1	.511	3	16	.680
Kadar Pb Akhir (C1) ppm 2	4.664	3	16	.016
Kadar Pb Akhir (C1) ppm 3	2.788	3	16	.074
Kadar Pb Akhir (C1) ppm 4	.274	3	16	.844

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Kadar Pb Akhir (C1) ppm 1	Between Groups	.795	3	.265	1.277	.316
	Within Groups	3.321	16	.208		
	Total	4.116	19			
Kadar Pb Akhir (C1) ppm 2	Between Groups	382.562	3	127.521	16.138	.000
	Within Groups	126.433	16	7.902		
	Total	508.995	19			
Kadar Pb Akhir (C1) ppm 3	Between Groups	12.491	3	4.164	96.218	.000
	Within Groups	.692	16	.043		
	Total	13.184	19			
Kadar Pb Akhir (C1) ppm 4	Between Groups	2.520	3	.840	14.229	.000
	Within Groups	.945	16	.059		
	Total	3.465	19			

Post Hoc Tests
Homogeneous Subsets

Kadar Pb Akhir (C1) ppm pada replikasi 1

Duncan[a]

Perlakuan	N	Subset for alpha = 0.05
		1
Kontrol	5	.7700
3 Sisir (2.985 gram)	5	1.0800
1 Sisir (995 gram)	5	1.1760
2 Sisir (1.990 gram)	5	1.3120
Sig.		.101

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 5.000.

Kadar Pb Akhir (C1) ppm pada replikasi 2

Duncan[a]

Perlakuan	N	Subset for alpha = 0.05		
		1	2	3
Kontrol	5	2.8900		
1 Sisir (995 gram)	5		8.0520	
3 Sisir (2.985 gram)	5		11.2340	11.2340
2 Sisir (1.990 gram)	5			14.7900
Sig.		1.000	.092	.063

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 5.000.

Kadar Pb Akhir (C1) ppm pada replikasi 3

Duncan[a]

Perlakuan	N	Subset for alpha = 0.05			
		1	2	3	4
Kontrol	5	1.4620			
1 Sisir (995 gram)	5		2.2520		
2 Sisir (1.990 gram)	5			2.9960	
3 Sisir (2.985 gram)	5				3.5640
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 5.000.

Kadar Pb Akhir (C1) ppm pada replikasi 4

Duncan[a]

Perlakuan	N	Subset for alpha = 0.05		
		1	2	3
Kontrol	5	4.1820		
1 Sisir (995 gram)	5	4.4740		
2 Sisir (1.990 gram)	5		4.8040	
3 Sisir (2.985 gram)	5			5.1300
Sig.		.076	1.000	1.000

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 5.000.

Oneway

Persentase Kandungan Cr

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Kadar Cr Awal (C0) ppm	Kontrol	5	9.2500	.00000	.00000	9.2500	9.2500	9.25	9.25
	1 Sisir (995 gram)	5	8.7500	.00000	.00000	8.7500	8.7500	8.75	8.75
	2 Sisir (1.990 gram)	5	12.2500	.00000	.00000	12.2500	12.2500	12.25	12.25
	3 Sisir (2.985 gram)	5	12.0000	.00000	.00000	12.0000	12.0000	12.00	12.00
	Total	20	10.5625	1.61587	.36132	9.8063	11.3187	8.75	12.25
Kadar Cr Akhir (C1) ppm 1	Kontrol	5	8.3120	.88807	.39716	7.2093	9.4147	7.12	9.19
	1 Sisir (995 gram)	5	8.1740	1.04901	.46913	6.8715	9.4765	6.86	9.43
	2 Sisir (1.990 gram)	5	10.3980	.91990	.41139	9.2558	11.5402	8.95	11.20
	3 Sisir (2.985 gram)	5	11.6780	1.47087	.65779	9.8517	13.5043	9.50	13.46
	Total	20	9.6405	1.81802	.40652	8.7896	10.4914	6.86	13.46
Kadar Cr Akhir (C1) ppm 2	Kontrol	5	.8360	.60144	.26897	.0892	1.5828	.24	1.55
	1 Sisir (995 gram)	5	1.9140	.55121	.24651	1.2296	2.5984	1.24	2.43
	2 Sisir (1.990 gram)	5	2.3260	.33254	.14871	1.9131	2.7389	1.74	2.52
	3 Sisir (2.985 gram)	5	2.5340	.41741	.18667	2.0157	3.0523	2.00	2.96
	Total	20	1.9025	.80720	.18050	1.5247	2.2803	.24	2.96
Kadar Cr Akhir (C1) ppm 3	Kontrol	5	5.5420	.70205	.31396	4.6703	6.4137	4.85	6.53
	1 Sisir (995 gram)	5	7.5060	.63752	.28511	6.7144	8.2976	6.94	8.39
	2 Sisir (1.990 gram)	5	9.1660	.63979	.28612	8.3716	9.9604	8.38	9.80
	3 Sisir (2.985 gram)	5	10.3920	.48782	.21816	9.7863	10.9977	9.73	11.08
	Total	20	8.1515	1.95425	.43698	7.2369	9.0661	4.85	11.08
Kadar Cr Akhir (C1) ppm 4	Kontrol	5	10.6360	.30022	.13426	10.2632	11.0088	10.23	10.92
	1 Sisir (995 gram)	5	10.0540	.33448	.14959	9.6387	10.4693	9.57	10.50
	2 Sisir (1.990 gram)	5	8.6540	.96793	.43287	7.4522	9.8558	7.57	9.81
	3 Sisir (2.985 gram)	5	5.3400	1.33056	.59505	3.6879	6.9921	3.50	7.10
	Total	20	8.6710	2.24764	.50259	7.6191	9.7229	3.50	10.92

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Kadar Cr Awal (C0) ppm	.	3	.	.
Kadar Cr Akhir (C1) ppm 1	.378	3	16	.770
Kadar Cr Akhir (C1) ppm 2	1.836	3	16	.181
Kadar Cr Akhir (C1) ppm 3	.629	3	16	.607
Kadar Cr Akhir (C1) ppm 4	3.738	3	16	.033

ANOVA

		Sum of Squares	Df	Mean Square	F	Sig.
Kadar Cr Awal (C0) ppm	Between Groups	49.609	3	16.536	.	.
	Within Groups	.000	16	.000		
	Total	49.609	19			
Kadar Cr Akhir (C1) ppm 1	Between Groups	43.204	3	14.401	11.759	.000
	Within Groups	19.595	16	1.225		
	Total	62.799	19			
Kadar Cr Akhir (C1) ppm 2	Between Groups	8.578	3	2.859	12.035	.000
	Within Groups	3.801	16	.238		
	Total	12.380	19			
Kadar Cr Akhir (C1) ppm 3	Between Groups	66.376	3	22.125	57.223	.000
	Within Groups	6.186	16	.387		
	Total	72.562	19			
Kadar Cr Akhir (C1) ppm 4	Between Groups	84.349	3	28.116	38.657	.000
	Within Groups	11.637	16	.727		
	Total	95.986	19			

Post Hoc Tests
Homogeneous Subsets

Kadar Cr (C1) ppm pada replikasi 1

Duncan[a]

Perlakuan	N	Subset for alpha = 0.05	
		1	2
1 Sisir (995 gram)	5	8.1740	
Kontrol	5	8.3120	
2 Sisir (1.990 gram)	5		10.3980
3 Sisir (2.985 gram)	5		11.6780
Sig.		.846	.086

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 5.000.

Kadar Cr (C1) ppm pada replikasi 2

Duncan[a]

Perlakuan	N	Subset for alpha = 0.05	
		1	2
Kontrol	5	.8360	
1 Sisir (995 gram)	5		1.9140
2 Sisir (1.990 gram)	5		2.3260
3 Sisir (2.985 gram)	5		2.5340
Sig.		1.000	.074

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 5.000.

Kadar Cr Akhir (C1) ppm pada replikasi 3

Duncan[a]

Perlakuan	N	Subset for alpha = 0.05			
		1	2	3	4
Kontrol	5	5.5420			
1 Sisir (995 gram)	5		7.5060		
2 Sisir (1.990 gram)	5			9.1660	
3 Sisir (2.985 gram)	5				10.3920
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 5.000.

Kadar Cr Akhir (C1) ppm pada replikasi 4

Duncan[a]

Perlakuan	N	Subset for alpha = 0.05		
		1	2	3
3 Sisir (2.985 gram)	5	5.3400		
2 Sisir (1.990 gram)	5		8.6540	
1 Sisir (995 gram)	5			10.0540
Kontrol	5			10.6360
Sig.		1.000	1.000	.297

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 5.000.

Oneway

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Kadar Pb Awal (C0) ppm	5 jam	4	81.9500	34.20268	17.10134	27.5259	136.3741	47.05	124.89
	10 jam	4	81.9500	34.20268	17.10134	27.5259	136.3741	47.05	124.89
	15 jam	4	81.9500	34.20268	17.10134	27.5259	136.3741	47.05	124.89
	20 jam	4	81.9500	34.20268	17.10134	27.5259	136.3741	47.05	124.89
	25 jam	4	81.9500	34.20268	17.10134	27.5259	136.3741	47.05	124.89
	Total	20	81.9500	30.38988	6.79538	67.7271	96.1729	47.05	124.89
Kadar Pb Akhir (C1) ppm 1	5 jam	4	1.1175	.22217	.11108	.7640	1.4710	.94	1.40
	10 jam	4	1.0500	.74193	.37097	-.1306	2.2306	.18	1.93
	15 jam	4	1.1125	.24958	.12479	.7154	1.5096	.79	1.37
	20 jam	4	1.0600	.40083	.20042	.4222	1.6978	.59	1.57
	25 jam	4	1.0825	.73785	.36893	-.0916	2.2566	.47	2.00
	Total	20	1.0845	.46545	.10408	.8667	1.3023	.18	2.00
Kadar Pb Akhir (C1) ppm 2	5 jam	4	7.8600	2.21758	1.10879	4.3313	11.3887	5.54	10.62
	10 jam	4	10.0400	7.37637	3.68819	-1.6975	21.7775	2.09	16.72
	15 jam	4	10.1750	6.16160	3.08080	.3705	19.9795	2.45	16.26
	20 jam	4	9.5225	6.43327	3.21664	-.7143	19.7593	1.55	15.91
	25 jam	4	8.6100	5.07841	2.53920	.5291	16.6909	2.82	14.44
	Total	20	9.2415	5.17583	1.15735	6.8191	11.6639	1.55	16.72
Kadar Pb Akhir (C1) ppm 3	5 jam	4	2.4150	1.05079	.52540	.7430	4.0870	1.24	3.59
	10 jam	4	2.4100	.96585	.48293	.8731	3.9469	1.29	3.52
	15 jam	4	2.5650	.93057	.46529	1.0843	4.0457	1.41	3.59
	20 jam	4	2.6475	.85066	.42533	1.2939	4.0011	1.57	3.45
	25 jam	4	2.8050	.78751	.39375	1.5519	4.0581	1.80	3.67
	Total	20	2.5685	.83300	.18626	2.1786	2.9584	1.24	3.67
Kadar Pb Akhir (C1) ppm 4	5 jam	4	4.4700	.24290	.12145	4.0835	4.8565	4.29	4.81
	10 jam	4	4.5950	.34034	.17017	4.0534	5.1366	4.24	4.96
	15 jam	4	4.5750	.57460	.28730	3.6607	5.4893	3.84	5.16
	20 jam	4	4.8050	.64127	.32064	3.7846	5.8254	4.02	5.59
	25 jam	4	4.7925	.35359	.17679	4.2299	5.3551	4.38	5.13
	Total	20	4.6475	.42706	.09549	4.4476	4.8474	3.84	5.59

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Kadar Pb Awal (C0) ppm	.000	4	15	1.000
Kadar Pb Akhir (C1) ppm 1	2.864	4	15	.060
Kadar Pb Akhir (C1) ppm 2	2.844	4	15	.061
Kadar Pb Akhir (C1) ppm 3	.253	4	15	.904
Kadar Pb Akhir (C1) ppm 4	.741	4	15	.579

ANOVA

		Sum of Squares	Df	Mean Square	F	Sig.
Kadar Pb Awal (C0) ppm	Between Groups	.000	4	.000	.000	1.000
	Within Groups	17547.353	15	1169.824		
	Total	17547.353	19			
Kadar Pb Akhir (C1) ppm 1	Between Groups	.015	4	.004	.013	1.000
	Within Groups	4.102	15	.273		
	Total	4.116	19			
Kadar Pb Akhir (C1) ppm 2	Between Groups	15.581	4	3.895	.118	.974
	Within Groups	493.413	15	32.894		
	Total	508.995	19			
Kadar Pb Akhir (C1) ppm 3	Between Groups	.443	4	.111	.131	.969
	Within Groups	12.740	15	.849		
	Total	13.184	19			
Kadar Pb Akhir (C1) ppm 4	Between Groups	.341	4	.085	.410	.799
	Within Groups	3.124	15	.208		
	Total	3.465	19			

Post Hoc Tests

Homogeneous Subsets

Kadar Pb Akhir (C1) ppm pada replikasi 1

Duncan[a]

Waktu (Jam)	N	Subset for alpha = 0.05
		1
10 jam	4	1.0500
20 jam	4	1.0600
25 jam	4	1.0825
15 jam	4	1.1125
5 jam	4	1.1175
Sig.		.871

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 4.000.

Kadar Pb Akhir (C1) ppm pada replikasi 2

Duncan[a]

Waktu (Jam)	N	Subset for alpha = 0.05
		1
5 jam	4	7.8600
25 jam	4	8.6100
20 jam	4	9.5225
10 jam	4	10.0400
15 jam	4	10.1750
Sig.		.612

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 4.000.

Kadar Pb Akhir (C1) ppm pada replikasi 3

Duncan[a]

Waktu (Jam)	N	Subset for alpha = 0.05
		1
10 jam	4	2.4100
5 jam	4	2.4150
15 jam	4	2.5650
20 jam	4	2.6475
25 jam	4	2.8050
Sig.		.591

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 4.000.

Kadar Pb Akhir (C1) ppm pada replikasi 4

Duncan[a]

Waktu (Jam)	N	Subset for alpha = 0.05
		1
5 jam	4	4.4700
15 jam	4	4.5750
10 jam	4	4.5950
25 jam	4	4.7925
20 jam	4	4.8050
Sig.		.362

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 4.000.

Oneway

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Kadar Cr Awal (C0) ppm	5 jam	4	10.5625	1.81860	.90930	7.6687	13.4563	8.75	12.25
	10 jam	4	10.5625	1.81860	.90930	7.6687	13.4563	8.75	12.25
	15 jam	4	10.5625	1.81860	.90930	7.6687	13.4563	8.75	12.25
	20 jam	4	10.5625	1.81860	.90930	7.6687	13.4563	8.75	12.25
	25 jam	4	10.5625	1.81860	.90930	7.6687	13.4563	8.75	12.25
	Total	20	10.5625	1.61587	.36132	9.8063	11.3187	8.75	12.25
Kadar Cr Akhir (C1) ppm 1	5 jam	4	9.5975	1.12010	.56005	7.8152	11.3798	8.95	11.27
	10 jam	4	9.9200	2.66662	1.33331	5.6768	14.1632	7.51	13.46
	15 jam	4	9.5775	.45272	.22636	8.8571	10.2979	9.16	10.22
	20 jam	4	9.5300	2.26894	1.13447	5.9196	13.1404	7.12	11.73
	25 jam	4	9.5775	2.66101	1.33050	5.3432	13.8118	6.86	12.43
	Total	20	9.6405	1.81802	.40652	8.7896	10.4914	6.86	13.46
Kadar Cr Akhir (C1) ppm 2	5 jam	4	1.3525	.83703	.41852	.0206	2.6844	.24	2.19
	10 jam	4	2.0350	.75031	.37516	.8411	3.2289	1.36	2.83
	15 jam	4	2.2550	.49088	.24544	1.4739	3.0361	1.55	2.69
	20 jam	4	1.8325	.76391	.38195	.6169	3.0481	.74	2.52
	25 jam	4	2.0375	1.18966	.59483	.1445	3.9305	.29	2.96
	Total	20	1.9025	.80720	.18050	1.5247	2.2803	.24	2.96
Kadar Cr Akhir (C1) ppm 3	5 jam	4	7.4825	2.07558	1.03779	4.1798	10.7852	4.88	9.73
	10 jam	4	7.9125	2.50240	1.25120	3.9306	11.8944	4.85	10.46
	15 jam	4	8.1875	2.24392	1.12196	4.6169	11.7581	5.80	11.08
	20 jam	4	8.4875	2.04193	1.02097	5.2383	11.7367	5.65	10.22
	25 jam	4	8.6875	1.79013	.89506	5.8390	11.5360	6.53	10.47
	Total	20	8.1515	1.95425	.43698	7.2369	9.0661	4.85	11.08
Kadar Cr Akhir (C1) ppm 4	5 jam	4	9.5025	1.71041	.85520	6.7809	12.2241	7.10	10.92
	10 jam	4	9.0025	2.18950	1.09475	5.5185	12.4865	5.74	10.42
	15 jam	4	8.7400	2.29456	1.14728	5.0888	12.3912	5.62	10.73
	20 jam	4	8.3925	2.72692	1.36346	4.0534	12.7316	4.74	10.88
	25 jam	4	7.7175	3.03059	1.51530	2.8952	12.5398	3.50	10.23
	Total	20	8.6710	2.24764	.50259	7.6191	9.7229	3.50	10.92

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Kadar Cr Awal (C0) ppm	.000	4	15	1.000
Kadar Cr Akhir (C1) ppm 1	5.405	4	15	.007
Kadar Cr Akhir (C1) ppm 2	.804	4	15	.542
Kadar Cr Akhir (C1) ppm 3	.193	4	15	.938
Kadar Cr Akhir (C1) ppm 4	.353	4	15	.838

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Kadar Cr Awal (C0) ppm	Between Groups	.000	4	.000	.000	1.000
	Within Groups	49.609	15	3.307		
	Total	49.609	19			
Kadar Cr Akhir (C1) ppm 1	Between Groups	.400	4	.100	.024	.999
	Within Groups	62.398	15	4.160		
	Total	62.799	19			
Kadar Cr Akhir (C1) ppm 2	Between Groups	1.870	4	.467	.667	.625
	Within Groups	10.510	15	.701		
	Total	12.380	19			
Kadar Cr Akhir (C1) ppm 3	Between Groups	3.625	4	.906	.197	.936
	Within Groups	68.938	15	4.596		
	Total	72.562	19			
Kadar Cr Akhir (C1) ppm 4	Between Groups	7.171	4	1.793	.303	.872
	Within Groups	88.815	15	5.921		
	Total	95.986	19			

Post Hoc Tests

Homogeneous Subsets

Kadar Cr Akhir (C1) ppm pada replikasi 1

Duncan[a]

Waktu (Jam)	N	Subset for alpha = 0.05
		1
20 jam	4	9.5300
15 jam	4	9.5775
25 jam	4	9.5775
5 jam	4	9.5975
10 jam	4	9.9200
Sig.		.810

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 4.000.

Kadar Cr Akhir (C1) ppm pada replikasi 2

Duncan[a]

Waktu (Jam)	N	Subset for alpha = 0.05
		1
5 jam	4	1.3525
20 jam	4	1.8325
10 jam	4	2.0350
25 jam	4	2.0375
15 jam	4	2.2550
Sig.		.187

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 4.000.

Kadar Cr Akhir (C1) ppm pada replikasi 3

Duncan[a]

Waktu (Jam)	N	Subset for alpha = 0.05
		1
5 jam	4	7.4825
10 jam	4	7.9125
15 jam	4	8.1875
20 jam	4	8.4875
25 jam	4	8.6875
Sig.		.482

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 4.000.

Kadar Cr Akhir (C1) ppm pada replikasi 4

Duncan[a]

Waktu (Jam)	N	Subset for alpha = 0.05
		1
25 jam	4	7.7175
20 jam	4	8.3925
15 jam	4	8.7400
10 jam	4	9.0025
5 jam	4	9.5025
Sig.		.362

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 4.000.

Oneway

Variasi Berat (Jumlah Sisir) terhadap Efisiensi Removal Kandungan Pb

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Logam Berat Pb (%) 1	Kontrol	5	98.3640	.91789	.41049	97.2243	99.5037	97.39	99.62
	1 Sisir (995 gram)	5	98.1480	.79308	.35467	97.1633	99.1327	96.96	99.07
	2 Sisir (1.990 gram)	5	98.5760	.56279	.25169	97.8772	99.2748	97.83	99.14
	3 Sisir (2.985 gram)	5	99.1360	.27682	.12380	98.7923	99.4797	98.90	99.60
	Total	20	98.5560	.73126	.16351	98.2138	98.8982	96.96	99.62
Logam Berat Pb (%) 2	Kontrol	5	93.8600	3.30139	1.47643	89.7608	97.9592	88.23	96.71
	1 Sisir (995 gram)	5	87.3220	3.07436	1.37490	83.5047	91.1393	82.98	91.42
	2 Sisir (1.990 gram)	5	83.9820	2.68957	1.20281	80.6425	87.3215	81.89	88.50
	3 Sisir (2.985 gram)	5	91.0040	3.51029	1.56985	86.6454	95.3626	87.27	94.90
	Total	20	89.0420	4.79995	1.07330	86.7956	91.2884	81.89	96.71
Logam Berat Pb (%) 3	Kontrol	5	96.8900	.48508	.21693	96.2877	97.4923	96.17	97.36
	1 Sisir (995 gram)	5	96.4520	.47945	.21442	95.8567	97.0473	95.81	97.02
	2 Sisir (1.990 gram)	5	96.7580	.15991	.07151	96.5595	96.9565	96.55	96.96
	3 Sisir (2.985 gram)	5	97.1480	.06686	.02990	97.0650	97.2310	97.06	97.24
	Total	20	96.8120	.41284	.09231	96.6188	97.0052	95.81	97.36
Logam Berat Pb (%) 4	Kontrol	5	91.1120	.51504	.23033	90.4725	91.7515	90.69	91.84
	1 Sisir (995 gram)	5	92.9560	.35367	.15816	92.5169	93.3951	92.47	93.32
	2 Sisir (1.990 gram)	5	94.7980	.22129	.09896	94.5232	95.0728	94.54	95.15
	3 Sisir (2.985 gram)	5	95.8920	.23690	.10594	95.5979	96.1861	95.52	96.15
	Total	20	93.6895	1.89582	.42392	92.8022	94.5768	90.69	96.15

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Logam Berat Pb (%) 1	2.723	3	16	.079
Logam Berat Pb (%) 2	.357	3	16	.785
Logam Berat Pb (%) 3	4.958	3	16	.013
Logam Berat Pb (%) 4	3.384	3	16	.044

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Logam Berat Pb (%) 1	Between Groups	2.701	3	.900	1.931	.165
	Within Groups	7.459	16	.466		
	Total	10.160	19			
Logam Berat Pb (%) 2	Between Groups	278.123	3	92.708	9.292	.001
	Within Groups	159.627	16	9.977		
	Total	437.750	19			
Logam Berat Pb (%) 3	Between Groups	1.257	3	.419	3.386	.044
	Within Groups	1.981	16	.124		
	Total	3.238	19			
Logam Berat Pb (%) 4	Between Groups	66.307	3	22.102	178.445	.000
	Within Groups	1.982	16	.124		
	Total	68.288	19			

Post Hoc Tests
Homogeneous Subsets

Efisiensi Removal Logam Berat Pb (%) pada Replikasi 1

Duncan[a]

Perlakuan	N	Subset for alpha = 0.05	
		1	2
1 Sisir (995 gram)	5	98.1480	
Kontrol	5	98.3640	98.3640
2 Sisir (1.990 gram)	5	98.5760	98.5760
3 Sisir (2.985 gram)	5		99.1360
Sig.		.362	.108

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 5.000.

Efisiensi Removal Logam Berat Pb (%)pada Replikasi 2

Duncan[a]

Perlakuan	N	Subset for alpha = 0.05		
		1	2	3
2 Sisir (1.990 gram)	5	83.9820		
1 Sisir (995 gram)	5	87.3220	87.3220	
3 Sisir (2.985 gram)	5		91.0040	91.0040
Kontrol	5			93.8600
Sig.		.114	.084	.172

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 5.000.

Efisiensi Removal Logam Berat Pb (%)pada Replikasi 3

Duncan[a]

Perlakuan	N	Subset for alpha = 0.05	
		1	2
1 Sisir (995 gram)	5	96.4520	
2 Sisir (1.990 gram)	5	96.7580	96.7580
Kontrol	5	96.8900	96.8900
3 Sisir (2.985 gram)	5		97.1480
Sig.		.079	.115

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 5.000.

Efisiensi Removal Logam Berat Pb (%)pada Replikasi 4

Duncan[a]

Perlakuan	N	Subset for alpha = 0.05			
		1	2	3	4
Kontrol	5	91.1120			
1 Sisir (995 gram)	5		92.9560		
2 Sisir (1.990 gram)	5			94.7980	
3 Sisir (2.985 gram)	5				95.8920
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 5.000.

Oneway

Variasi Berat (jumlah sisir) Efisiensi Removal Kandungan Cr

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Logam Berat Cr (%) 1	Kontrol	5	10.1400	9.60216	4.29422	-1.7827	22.0627	.65	23.03
	1 Sisir (995 gram)	5	10.7420	7.32355	3.27519	1.6486	19.8354	2.63	21.60
	2 Sisir (1.990 gram)	5	15.1180	7.51108	3.35906	5.7918	24.4442	8.57	26.94
	3 Sisir (2.985 gram)	5	8.9820	7.63972	3.41659	-.5040	18.4680	2.25	20.83
	Total	20	11.2455	7.78138	1.73997	7.6037	14.8873	.65	26.94
Logam Berat Cr (%) 2	Kontrol	5	90.9620	6.50246	2.90799	82.8881	99.0359	83.24	97.41
	1 Sisir (995 gram)	5	78.1260	6.30076	2.81779	70.3026	85.9494	72.23	85.83
	2 Sisir (1.990 gram)	5	81.0140	2.71566	1.21448	77.6421	84.3859	79.43	85.80
	3 Sisir (2.985 gram)	5	78.8820	3.47791	1.55537	74.5636	83.2004	75.33	83.33
	Total	20	82.2460	7.01388	1.56835	78.9634	85.5286	72.23	97.41
Logam Berat Cr (%) 3	Kontrol	5	40.0880	7.58763	3.39329	30.6667	49.5093	29.41	47.57
	1 Sisir (995 gram)	5	14.2160	7.28813	3.25935	5.1666	23.2654	4.11	20.69
	2 Sisir (1.990 gram)	5	25.1740	5.22110	2.33495	18.6911	31.6569	20.00	31.59
	3 Sisir (2.985 gram)	5	13.4000	4.06496	1.81791	8.3527	18.4473	7.67	18.92
	Total	20	23.2195	12.45445	2.78490	17.3906	29.0484	4.11	47.57
Logam Berat Cr (%) 4	Kontrol	5	14.9820	3.24561	1.45148	10.9520	19.0120	10.59	18.05
	1 Sisir (995 gram)	5	14.9020	3.82272	1.70957	10.1555	19.6485	9.37	20.00
	2 Sisir (1.990 gram)	5	29.3540	7.89954	3.53278	19.5454	39.1626	19.92	38.20
	3 Sisir (2.985 gram)	5	55.5000	11.08756	4.95851	41.7330	69.2670	40.83	70.83
	Total	20	28.6845	18.24989	4.08080	20.1433	37.2257	9.37	70.83

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Logam Berat Cr (%) 1	.252	3	16	.858
Logam Berat Cr (%) 2	3.901	3	16	.029
Logam Berat Cr (%) 3	1.460	3	16	.263
Logam Berat Cr (%) 4	2.707	3	16	.080

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Logam Berat Cr (%) 1	Between Groups	107.977	3	35.992	.552	.654
	Within Groups	1042.470	16	65.154		
	Total	1150.447	19			
Logam Berat Cr (%) 2	Between Groups	528.887	3	176.296	6.951	.003
	Within Groups	405.809	16	25.363		
	Total	934.696	19			
Logam Berat Cr (%) 3	Between Groups	2329.260	3	776.420	20.105	.000
	Within Groups	617.891	16	38.618		
	Total	2947.151	19			
Logam Berat Cr (%) 4	Between Groups	5486.175	3	1828.725	34.753	.000
	Within Groups	841.935	16	52.621		
	Total	6328.111	19			

Post Hoc Tests
Homogeneous Subsets

Efisiensi Logam Berat Cr (%)pada Replikasi 1

Duncan[a]

Perlakuan	N	Subset for alpha = 0.05
		1
3 Sisir (2.985 gram)	5	8.9820
Kontrol	5	10.1400
1 Sisir (995 gram)	5	10.7420
2 Sisir (1.990 gram)	5	15.1180
Sig.		.285

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 5.000.

Efisiensi Logam Berat Cr (%)pada Replikasi 2

Duncan[a]

Perlakuan	N	Subset for alpha = 0.05	
		1	2
1 Sisir (995 gram)	5	78.1260	
3 Sisir (2.985 gram)	5	78.8820	
2 Sisir (1.990 gram)	5	81.0140	
Kontrol	5		90.9620
Sig.		.403	1.000

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 5.000.

Efisiensi Logam Berat Cr (%)pada Replikasi 3

Duncan[a]

Perlakuan	N	Subset for alpha = 0.05		
		1	2	3
3 Sisir (2.985 gram)	5	13.4000		
1 Sisir (995 gram)	5	14.2160		
2 Sisir (1.990 gram)	5		25.1740	
Kontrol	5			40.0880
Sig.		.838	1.000	1.000

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 5.000.

Efisiensi Logam Berat Cr (%)pada Replikasi 4

Duncan[a]

Perlakuan	N	Subset for alpha = 0.05		
		1	2	3
1 Sisir (995 gram)	5	14.9020		
Kontrol	5	14.9820		
2 Sisir (1.990 gram)	5		29.3540	
3 Sisir (2.985 gram)	5			55.5000
Sig.		.986	1.000	1.000

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 5.000.

Oneway

Waktu Terhadap Efisiensi Removal Logam Berat Pb (%)

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Logam Berat Pb (%) 1	5 jam	4	98.5125	.42921	.21461	97.8295	99.1955	98.00	99.05
	10 jam	4	98.6700	1.17306	.58653	96.8034	100.5366	96.96	99.62
	15 jam	4	98.4400	.77807	.38904	97.2019	99.6781	97.39	99.14
	20 jam	4	98.5850	.64490	.32245	97.5588	99.6112	97.81	99.16
	25 jam	4	98.5725	.87511	.43756	97.1800	99.9650	97.83	99.60
	Total	20	98.5560	.73126	.16351	98.2138	98.8982	96.96	99.62
Logam Berat Pb (%) 2	5 jam	4	89.4700	3.53473	1.76737	83.8455	95.0945	86.54	94.61
	10 jam	4	89.0350	5.84323	2.92162	79.7371	98.3329	81.89	95.56
	15 jam	4	88.3100	5.12672	2.56336	80.1522	96.4678	82.39	94.79
	20 jam	4	89.3325	5.71860	2.85930	80.2329	98.4321	82.77	96.71
	25 jam	4	89.0625	6.26271	3.13135	79.0971	99.0279	82.98	94.90
	Total	20	89.0420	4.79995	1.07330	86.7956	91.2884	81.89	96.71
Logam Berat Pb (%) 3	5 jam	4	97.0825	.22515	.11257	96.7242	97.4408	96.82	97.36
	10 jam	4	97.0550	.20158	.10079	96.7342	97.3758	96.82	97.26
	15 jam	4	96.8250	.33670	.16835	96.2892	97.3608	96.36	97.13
	20 jam	4	96.6750	.41461	.20730	96.0153	97.3347	96.25	97.24
	25 jam	4	96.4225	.54683	.27342	95.5524	97.2926	95.81	97.06
	Total	20	96.8120	.41284	.09231	96.6188	97.0052	95.81	97.36
Logam Berat Pb (%) 4	5 jam	4	93.8525	2.32273	1.16137	90.1565	97.5485	90.88	96.15
	10 jam	4	93.7100	2.29804	1.14902	90.0533	97.3667	90.69	96.03
	15 jam	4	93.8675	1.78569	.89285	91.0261	96.7089	91.84	95.87
	20 jam	4	93.5550	1.90645	.95323	90.5214	96.5886	91.46	95.52
	25 jam	4	93.4625	2.25663	1.12831	89.8717	97.0533	90.69	95.89
	Total	20	93.6895	1.89582	.42392	92.8022	94.5768	90.69	96.15

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Logam Berat Pb (%) 1	1.299	4	15	.315
Logam Berat Pb (%) 2	.623	4	15	.653
Logam Berat Pb (%) 3	1.433	4	15	.271
Logam Berat Pb (%) 4	.102	4	15	.980

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Logam Berat Pb (%) 1	Between Groups	.118	4	.029	.044	.996
	Within Groups	10.042	15	.669		
	Total	10.160	19			
Logam Berat Pb (%) 2	Between Groups	3.215	4	.804	.028	.998
	Within Groups	434.535	15	28.969		
	Total	437.750	19			
Logam Berat Pb (%) 3	Between Groups	1.211	4	.303	2.241	.113
	Within Groups	2.027	15	.135		
	Total	3.238	19			
Logam Berat Pb (%) 4	Between Groups	.513	4	.128	.028	.998
	Within Groups	67.775	15	4.518		
	Total	68.288	19			

Post Hoc Tests
Homogeneous Subsets

Efisiensi removal Logam Berat Pb (%) pada replikasi 1

Duncan[a]

Waktu (Jam)	N	Subset for alpha = 0.05
		1
15 jam	4	98.4400
5 jam	4	98.5125
25 jam	4	98.5725
20 jam	4	98.5850
10 jam	4	98.6700
Sig.		.723

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 4.000.

Efisiensi removal Logam Berat Pb (%) pada replikasi 2

Duncan[a]

Waktu (Jam)	N	Subset for alpha = 0.05
		1
15 jam	4	88.3100
10 jam	4	89.0350
25 jam	4	89.0625
20 jam	4	89.3325
5 jam	4	89.4700
Sig.		.786

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 4.000.

Efisiensi removal Logam Berat Pb (%) pada replikasi 3

Duncan[a]

Waktu (Jam)	N	Subset for alpha = 0.05	
		1	2
25 jam	4	96.4225	
20 jam	4	96.6750	96.6750
15 jam	4	96.8250	96.8250
10 jam	4		97.0550
5 jam	4		97.0825
Sig.		.162	.168

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 4.000.

Efisiensi removal Logam Berat Pb (%) pada replikasi 4

Duncan[a]

Waktu (Jam)	N	Subset for alpha = 0.05
		1
25 jam	4	93.4625
20 jam	4	93.5550
10 jam	4	93.7100
5 jam	4	93.8525
15 jam	4	93.8675
Sig.		.810

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 4.000.

Oneway

Waktu Perendaman Terhadap **Efisiensi removal Logam Berat Cr (%)**

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Logam Berat Cr (%) 1	5 jam	4	9.0750	12.11950	6.05975	-10.2098	28.3598	.65	26.94
	10 jam	4	12.9275	1.91601	.95800	9.8787	15.9763	10.59	14.78
	15 jam	4	11.5350	8.89837	4.44918	-2.6243	25.6943	.97	20.83
	20 jam	4	10.3875	8.88646	4.44323	-3.7528	24.5278	2.25	23.03
	25 jam	4	12.3025	7.88304	3.94152	-.2412	24.8462	3.58	21.60
	Total	20	11.2455	7.78138	1.73997	7.6037	14.8873	.65	26.94
Logam Berat Cr (%) 2	5 jam	4	87.6975	6.75262	3.37631	76.9526	98.4424	81.75	97.41
	10 jam	4	81.2025	4.03497	2.01748	74.7820	87.6230	76.42	85.30
	15 jam	4	78.4900	4.57396	2.28698	71.2118	85.7682	72.57	83.24
	20 jam	4	82.7750	6.78250	3.39125	71.9825	93.5675	76.34	92.00
	25 jam	4	81.0650	10.98378	5.49189	63.5874	98.5426	72.23	96.86
	Total	20	82.2460	7.01388	1.56835	78.9634	85.5286	72.23	97.41
Logam Berat Cr (%) 3	5 jam	4	29.6100	13.02024	6.51012	8.8919	50.3281	18.92	47.24
	10 jam	4	26.0450	15.04246	7.52123	2.1091	49.9809	12.83	47.57
	15 jam	4	22.9275	13.16742	6.58371	1.9752	43.8798	7.67	37.30
	20 jam	4	19.6900	14.57867	7.28934	-3.5079	42.8879	4.11	38.92
	25 jam	4	17.8250	8.94665	4.47333	3.5889	32.0611	9.14	29.41
	Total	20	23.2195	12.45445	2.78490	17.3906	29.0484	4.11	47.57
Logam Berat Cr (%) 4	5 jam	4	25.3525	10.48006	5.24003	8.6764	42.0286	18.05	40.83
	10 jam	4	24.8700	18.45479	9.22739	-4.4957	54.2357	12.65	52.17
	15 jam	4	29.0750	17.54422	8.77211	1.1582	56.9918	16.00	53.17
	20 jam	4	31.8775	21.15206	10.57603	-1.7801	65.5351	14.29	60.50
	25 jam	4	32.2475	28.96244	14.48122	-13.8382	78.3332	9.37	70.83
	Total	20	28.6845	18.24989	4.08080	20.1433	37.2257	9.37	70.83

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Logam Berat Cr (%) 1	1.704	4	15	.201
Logam Berat Cr (%) 2	.945	4	15	.465
Logam Berat Cr (%) 3	.222	4	15	.922
Logam Berat Cr (%) 4	1.130	4	15	.379

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Logam Berat Cr (%) 1	Between Groups	37.910	4	9.477	.128	.970
	Within Groups	1112.537	15	74.169		
	Total	1150.447	19			
Logam Berat Cr (%) 2	Between Groups	186.360	4	46.590	.934	.471
	Within Groups	748.337	15	49.889		
	Total	934.696	19			
Logam Berat Cr (%) 3	Between Groups	361.861	4	90.465	.525	.719
	Within Groups	2585.290	15	172.353		
	Total	2947.151	19			
Logam Berat Cr (%) 4	Between Groups	194.781	4	48.695	.119	.974
	Within Groups	6133.329	15	408.889		
	Total	6328.111	19			

Post Hoc Tests
Homogeneous Subsets

Efisiensi removal Logam Berat Cr (%) pada replikasi 1

Duncan[a]

Waktu (Jam)	N	Subset for alpha = 0.05
		1
5 jam	4	9.0750
20 jam	4	10.3875
15 jam	4	11.5350
25 jam	4	12.3025
10 jam	4	12.9275
Sig.		.575

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 4.000.

Efisiensi removal Logam Berat Cr (%) pada replikasi 2

Duncan[a]

Waktu (Jam)	N	Subset for alpha = 0.05
		1
15 jam	4	78.4900
25 jam	4	81.0650
10 jam	4	81.2025
20 jam	4	82.7750
5 jam	4	87.6975
Sig.		.115

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 4.000.

Efisiensi removal Logam Berat Cr (%) pada replikasi 3

Duncan[a]

Waktu (Jam)	N	Subset for alpha = 0.05
		1
25 jam	4	17.8250
20 jam	4	19.6900
15 jam	4	22.9275
10 jam	4	26.0450
5 jam	4	29.6100
Sig.		.268

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 4.000.

Efisiensi removal Logam Berat Cr (%) pada replikasi 4

Duncan[a]

Waktu (Jam)	N	Subset for alpha = 0.05
		1
10 jam	4	24.8700
5 jam	4	25.3525
15 jam	4	29.0750
20 jam	4	31.8775
25 jam	4	32.2475
Sig.		.647

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 4.000.

Laboratorium Tanah, Tanaman, Pupuk, Air

BADAN PENELITIAN DAN PENGEMBANGAN PERTANIAN

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LAPORAN HASIL PENGUJIAN ANALISIS
REPORT OF FERTILIZER ANALYSIS

Nomor Lab. / *Lab. Number* : SP 95 L/LT-BPTP/XII/2020

IDENTIFIKASI BAHAN UJI / *SUBJECT IDENTIFICATION*

Nama Bahan Uji / *Subject*	: Kerang	Merek Sampel / *Sample Mark*	: -
Keterangan Contoh / *Sample Description*	: Plastik Bening	Produksi / *Production*	: -
Tujuan Analisis / *The Purpose of Analysis*	: Penelitian	Jumlah Sampel / *Sample Quantity*	: 5 (Lima)

IDENTIFIKASI PELANGGAN / *CUSTOMER IDENTIFICATION*

Pelanggan / *Customer*	: Abd. Gafur
Alamat / *Address*	: Jl. Dg. Regge I No. 91
Telepon / *Phone*	: +62-821-8705-2525
Tanggal Penerimaan / *Date of Registration*	: 14 Desember 2020

Diterbitkan tanggal, 06 Januari 2021
Date of issue

Lab. BPTP, P201295-1-IDN-310

Muhammad Asri, S.Si, M.Si
Technical Manajer

Laboratorium Tanah, Tanaman, Pupuk, Air

BADAN PENELITIAN DAN PENGEMBANGAN PERTANIAN

BALAI PENGKAJIAN TEKNOLOGI PERTANIAN SULAWESI SELATAN

Jl.Dr. Ratulangi No. 272, Kel. Allepolea, Kec. Lau, Kab. Maros Sulawesi Selatan 90514

Telp. (0411) 371572 Fax. (0411) 371572; e-mail: lab_bptpsulsel@yahoo.co.id

SCIENCE . INNOVATION . NETWORKS

Nomor Lab. : SP 95 L/LT-BPTP/XII/2020
Lab. Number

No. Urut *Number*	Kode Sampel *Sample Code*	Parameter *Parameter*			Metode Pengujian *Analysis Method*
		Pb, ppm	Cd, ppm	Cr, ppm	
1	ST 1	47,05	Tt	9,25	AAS
2	ST 2	62,93	Tt	2,75	
3	ST 3	63,52	Tt	8,75	
4	ST 4	68,82	Tt	1,50	
5	ST 5	85,29	Tt	5,50	

Keterangan : Tidak Terdeteksi

P201295-2-IDN-310

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LAPORAN HASIL PENGUJIAN ANALISIS
REPORT OF FERTILIZER ANALYSIS

Nomor Lab. / *Lab. Number* : SP 98 L/LT-BPTP/XII/2020

IDENTIFIKASI BAHAN UJI / *SUBJECT IDENTIFICATION*

Nama Bahan Uji / *Subject*	: Kerang	Merek Sampel / *Sample Mark*	: -
Keterangan Contoh / *Sample Description*	: Plastik Bening	Produksi / *Production*	: -
Tujuan Analisis / *The Purpose of Analysis*	: Penelitian	Jumlah Sampel / *Sample Quantity*	: 5 (Lima)

IDENTIFIKASI PELANGGAN / *CUSTOMER IDENTIFICATION*

Pelanggan / *Customer*	: Abd. Gafur
Alamat / *Address*	: Jl. Dg. Regge I No. 91
Telepon / *Phone*	: +62-821-8705-2525
Tanggal Penerimaan / *Date of Registration*	: 16 Desember 2020

Diterbitkan tanggal, 06 Januari 2021
Date of issue

Lab. BPTP, **P201298-1-IDN-310**

Muhammad Asri, S.Si, M.Si
Technical Manajer

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SCIENCE . INNOVATION . NETWORKS

Nomor Lab. : SP 98 L/LT-BPTP/XII/2020
Lab. Number

No. Urut *Number*	Kode Sampel *Sample Code*	Parameter *Parameter*			Metode Pengujian *Analysis Method*
		Pb, ppm	Cd, ppm	Cr, ppm	
1	ST 6	86,46	Tt	1,50	AAS
2	ST 7	94,70	Tt	2,00	
3	ST 8	92,34	Tt	12,25	
4	ST 9	124,69	Tt	12,00	
5	ST 10	102,35	Tt	11,75	

Keterangan : Tidak Terdeteksi

P201298-2-IDN-310

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SCIENCE . INNOVATION . NETWORKS

LAPORAN HASIL PENGUJIAN AIR
REPORT OF FERTILIZER ANALYSIS

Nomor Lab. / *Lab. Number* : SP 97 A/LT-BPTP/XII/2020

IDENTIFIKASI BAHAN UJI / *SUBJECT IDENTIFICATION*

Nama Bahan Uji / *Subject*	: Sampel Air	Merek Sampel / *Sample Mark*	: -
Keterangan Contoh / *Sample Description*	: Botol Plastik	Produksi / *Production*	: -
Tujuan Analisis / *The Purpose of Analysis*	: Penelitian	Jumlah Sampel / *Sample Quantity*	: 6 (Enam)

IDENTIFIKASI PELANGGAN / *CUSTOMER IDENTIFICATION*

Pelanggan / *Customer*	: Abd. Gafur
Alamat / *Address*	: Jl. Dg. Regge I No. 91
Telepon / *Phone*	: +62-821-8705-2525
Tanggal Penerimaan / *Date of Registration*	: 14 Desember 2020

Diterbitkan tanggal, 28 Desember 2020
Date of issue

Lab. BPTP, P201297-1-IDN-310

Muhammad Asri, S.Si, M.Si
Technical Manager

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Nomor Lab. : SP 97 A/LT-BPTP/XII/2020
Lab. Number

No. Urut *Number*	Kode Sampel *Sample Code*	Parameter *Parameter*			Metode Pengujian *Analysis Method*
		Pb, ppm	Cd, ppm	Cr, ppm	
1	ST 1	5,13	3,87	31,00	AAS
2	ST 2	1,20	3,12	22,00	
3	ST 3	1,13	1,80	26,00	
4	ST 4	3,67	4,27	27,00	
5	ST 5	3,53	2,88	27,00	
6	Air Baku Depurasi	Tt	Tt	Tt	

Keterangan : Tidak Terdeteksi

P201297-2-IDN-310

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SCIENCE . INNOVATION . NETWORKS

LAPORAN HASIL PENGUJIAN AIR
REPORT OF FERTILIZER ANALYSIS

Nomor Lab. / *Lab. Number* : SP 100 A/LT-BPTP/XII/2020

IDENTIFIKASI BAHAN UJI / *SUBJECT IDENTIFICATION*

Nama Bahan Uji / *Subject*	: Air	Merek Sampel / *Sample Mark*	: -
Keterangan Contoh / *Sample Description*	: Botol Plastik	Produksi / *Production*	: -
Tujuan Analisis / *The Purpose of Analysis*	: Penelitian	Jumlah Sampel / *Sample Quantity*	: 5 (Lima)

IDENTIFIKASI PELANGGAN / *CUSTOMER IDENTIFICATION*

Pelanggan / *Customer*	: Abd. Gafur
Alamat / *Address*	: Jl. Dg. Regge I No. 91
Telepon / *Phone*	: +62-821-8705-2525
Tanggal Penerimaan / *Date of Registration*	: 16 Desember 2020

Diterbitkan tanggal, 06 Januari 2021
Date of issue

Lab. BPTP, P2012100-1-IDN-310

Muhammad Asri, S.Si, M.Si
Technical Manager

Laboratorium Tanah, Tanaman, Pupuk, Air

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Nomor Lab. : SP 100 A/LT-BPTP/XII/2020
Lab. Number

No. Urut / *Number*	Kode Sampel / *Sample Code*	Parameter / *Parameter*			Metode Pengujian / *Analysis Method*
		Pb, ppm	Cd, ppm	Cr, ppm	
1	ST 6	13,00	Tt	1,38	AAS
2	ST 7	13,71	0,79	1,13	
3	ST 8	14,00	0,10	2,08	
4	ST 9	14,41	Tt	0,75	
5	ST 10	13,88	0,63	1,18	

Keterangan : Tidak Terdeteksi

P2012100-2-IDN-310

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LAPORAN HASIL PENGUJIAN TANAH
REPORT OF FERTILIZER ANALYSIS

Nomor Lab / *Lab. Number* : SP 96 T/LT-BPTP/XII/2020

IDENTIFIKASI BAHAN UJI
SUBJECT IDENTIFICATION

Nama Bahan Uji / *Subject*	: Sedimen	Merek Sampel / *Sample Mark*	: -
Keterangan Contoh / *Sample Description*	: Plastik Bening	Produksi / *Production*	: -
Tujuan Analisis / *The Purpose of Analysis*	: Penelitian	Jumlah Sampel / *Sample Quantity*	: 5 (Lima)

IDENTIFIKASI PELANGGAN
CUSTOMER IDENTIFICATION

Pelanggan / *Customer*	: Abd. Gafur
Alamat / *Address*	: Jl. Dg. Regge I No. 91
Telepon / *Phone*	: +62-821-8705-2525
Tanggal Penerimaan / *Date of Registration*	: 14 Desember 2020

Diterbitkan tanggal / *Date of issue* : 07 Januari 2021

Lab. BPTP P201296-1-IDN-310

Muhammad Asri, S.Si, M.Si
Technical Manager

Laboratorium Tanah, Tanaman, Pupuk, Air

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SCIENCE INNOVATION NETWORKS

Nomor Lab. / *Lab. Number* : SP 96 T/LT-BPTP/XII/2020

No. Urut / Number	Kode Sampel / Sample Code	Parameter / Parameter			Metode Pengujian / Analysis Method
		Pb, ppm	Cd, ppm	Cr, ppm	
1	ST 1	16,46	Tt	41,09	AAS
2	ST 2	16,75	Tt	31,08	
3	ST 3	2,64	Tt	55,51	
4	ST 4	8,52	Tt	46,60	
5	ST 5	16,45	Tt	95,44	

***Keterangan** : Tidak Terdeteksi*

BADAN LITBANG - KEMENTERIAN PERTANIAN RI
P201296-2-IDN-310
BPTP LABORATORIUM SULAWESI SELATAN

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Laboratorium Tanah, Tanaman, Pupuk, Air

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BALAI PENGKAJIAN TEKNOLOGI PERTANIAN SULAWESI SELATAN

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LAPORAN HASIL PENGUJIAN TANAH
REPORT OF FERTILIZER ANALYSIS

Nomor Lab. / *Lab. Number*: SP 99 T/LT-BPTP/XII/2020

IDENTIFIKASI BAHAN UJI
SUBJECT IDENTIFICATION

Nama Bahan Uji *Subject*	Sedimen	Merek Sampel *Sample Mark*	-
Keterangan Contoh *Sample Description*	Plastik Putih	Produksi *Production*	-
Tujuan Analisis *The Purpose of Analysis*	Penelitian	Jumlah Sampel *Sample Quantity*	5 (Lima)

IDENTIFIKASI PELANGGAN
CUSTOMER IDENTIFICATION

Pelanggan *Customer*	Abd. Gafur
Alamat *Address*	Jl. Dg. Regge I No. 91
Telepon *Phone*	+62-821-8705-2525
Tanggal Penerimaan *Date of Registration*	16 Desember 2020

Diterbitkan tanggal / *Date of issue*: 18 Januari 2021

Lab. BPTP, P201299-1-IDN-310

Muhammad Asri, S.Si, M.Si
Technical Manager

F.DP.5.10.7

Laboratorium Tanah, Tanaman, Pupuk, Air

BADAN PENELITIAN DAN PENGEMBANGAN PERTANIAN

BALAI PENGKAJIAN TEKNOLOGI PERTANIAN SULAWESI SELATAN

Jl.Dr. Ratulangi No. 272, Kel. Allepolea, Kec. Lau, Kab. Maros Sulawesi Selatan 90514
Telp. (0411) 371572 Fax. (0411) 371572, e-mail: lab_bptpsulsel@yahoo.co.id

Nomor Lab / *Lab Number* : SP 99 T/LT-BPTP/XII/2020

No. Urut / *Number*	Kode Sampel / *Sample Code*	Parameter / *Parameter*			Metode Pengujian / *Analysis Method*
		Pb, ppm	Cd, ppm	Cr, ppm	
1	ST 6	5,99	Tt	7,49	AAS
2	ST 7	7,99	Tt	31,21	
3	ST 8	8,00	Tt	37,50	
4	ST 9	14,99	Tt	28,72	
5	ST 10	20,99	Tt	14,99	

Keterangan : Tidak Terdeteksi

P.201299-2-IDN-310

Laboratorium Tanah, Tanaman, Pupuk, Air

BADAN PENELITIAN DAN PENGEMBANGAN PERTANIAN

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SCIENCE . INNOVATION . NETWORKS

LAPORAN HASIL PENGUJIAN ANALISIS
REPORT OF FERTILIZER ANALYSIS

Nomor Lab. / *Lab. Number* : SP 107 L/LT-BPTP/XII/2020

IDENTIFIKASI BAHAN UJI / *SUBJECT IDENTIFICATION*

Nama Bahan Uji / *Subject*	: Kerang	Merek Sampel / *Sample Mark*	: -
Keterangan Contoh / *Sample Description*	: Plastik Bening	Produksi / *Production*	: -
Tujuan Analisis / *The Purpose of Analysis*	: Penelitian	Jumlah Sampel / *Sample Quantity*	: 20 (Dua Puluh)

IDENTIFIKASI PELANGGAN / *CUSTOMER IDENTIFICATION*

Pelanggan / *Customer*	: Abd. Gafur
Alamat / *Address*	: Jl. Dg. Regge I No. 91
Telepon / *Phone*	: +62-821-8705-2525
Tanggal Penerimaan / *Date of Registration*	: 22 Desember 2020

Diterbitkan tanggal, 07 Januari 2021
Date of issue

Lab. BPTP P2012107-1-IDN-310

Muhammad Asri, S.Si, M.Si
Technical Manajer

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F.DP.5.10.7

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BADAN PENELITIAN DAN PENGEMBANGAN PERTANIAN

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SCIENCE . INNOVATION . NETWORKS

Nomor Lab. / *Lab. Number* : SP 107 L/LT-BPTP/XII/2020

No. Urut / *Number*	Kode Sampel / *Sample Code*	Parameter / *Parameter*			Metode Pengujian / *Analysis Method*
		Pb, ppm	Cd, ppm	Cr, ppm	
1	PK 0.1.1	0,94	2,30	9,19	AAS
2	PK 0.1.2	0,18	1,43	8,27	
3	PK 0.1.3	1,23	0,10	9,16	
4	PK 0.1.4	1,03	0,80	7,12	
5	PK 0.1.5	0,47	1,61	7,82	
6	PK 1.1.1	0,94	Tt	8,98	
7	PK 1.1.2	1,93	Tt	7,51	
8	PK 1.1.3	1,06	Tt	9,43	
9	PK 1.1.4	0,59	Tt	8,09	
10	PK 1.1.5	1,36	Tt	6,86	
11	PK 2.1.1	1,40	Tt	8,95	
12	PK 2.1.2	0,84	Tt	10,44	
13	PK 2.1.3	0,79	0,90	10,22	
14	PK 2.1.4	1,57	0,93	11,18	
15	PK 2.1.5	2,00	1,03	11,20	
16	PK 3.1.1	1,19	1,05	11,27	
17	PK 3.1.2	1,29	0,30	13,46	
18	PK 3.1.3	1,37	0,65	9,50	
19	PK 3.1.4	1,05	0,51	11,73	
20	PK 3.1.5	0,50	Tt	12,43	

Keterangan : Tidak Terdeteksi

BADAN LITBANG - KEMENTERIAN PERTANIAN
P2012107-2-IDN-310
LABORATORIUM BPTP SULAWESI SELATAN

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F.DP.5.10.7

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BADAN PENELITIAN DAN PENGEMBANGAN PERTANIAN

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LAPORAN HASIL PENGUJIAN ANALISIS
REPORT OF FERTILIZER ANALYSIS

Nomor Lab. / *Lab. Number* : SP 112 L/LT-BPTP/XII/2020

IDENTIFIKASI BAHAN UJI
SUBJECT IDENTIFICATION

Nama Bahan Uji / *Subject* : Kerang

Merek Sampel / *Sample Mark* : -

Keterangan Contoh / *Sample Description* : Plastik Bening

Produksi / *Production* : -

Tujuan Analisis / *The Purpose of Analysis* : Penelitian

Jumlah Sampel / *Sample Quantity* : 20 (Dua Puluh)

IDENTIFIKASI PELANGGAN
CUSTOMER IDENTIFICATION

Pelanggan / *Customer* : Abd. Gafur

Alamat / *Address* : Jl. Dg. Regge I No. 91

Telepon / *Phone* : +62-821-8705-2525

Tanggal Penerimaan / *Date of Registration* : 28 Desember 2020

Diterbitkan tanggal, 18 Januari 2021
Date of issue

Lab. BPTP, P2012112-1-IDN-310

Muhammad Asri, S.Si, M.Si
Technical Manajer

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F.DP.5.10.7

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SCIENCE. INNOVATION. NETWORKS.

Nomor Lab. / *Lab. Number* : SP 112 L/LT-BPTP/XII/2020

No. Urut / *Number*	Kode Sampel / *Sample Code*	Parameter / *Parameter*			Metode Pengujian / *Analysis Method*
		Pb, ppm	Cd, ppm	Cr, ppm	
1	PK 0.2.1	5,54	Tt	0,24	AAS
2	PK 0.2.2	2,09	Tt	1,36	
3	PK 0.2.3	2,45	Tt	1,55	
4	PK 0.2.4	1,55	Tt	0,74	
5	PK 0.2.5	2,82	Tt	0,29	
6	PK 1.2.1	8,55	Tt	1,24	
7	PK 1.2.2	5,45	Tt	1,43	
8	PK 1.2.3	8,18	Tt	2,40	
9	PK 1.2.4	7,27	Tt	2,07	
10	PK 1.2.5	10,81	Tt	2,43	
11	PK 2.2.1	10,82	Tt	1,74	
12	PK 2.2.2	16,72	Tt	2,52	
13	PK 2.2.3	16,26	Tt	2,38	
14	PK 2.2.4	15,91	Tt	2,52	
15	PK 2.2.5	14,44	Tt	2,47	
16	PK 3.2.1	8,73	Tt	2,19	
17	PK 3.2.2	15,90	Tt	2,83	
18	PK 3.2.3	13,81	2	2,69	
19	PK 3.2.4	13,36	Tt	2,00	
20	PK 3.2.5	6,37	Tt	2,96	

Keterangan : Tidak Terdeteksi

P2012112-2-IDN-310

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SCIENCE INNOVATION NETWORKS

LAPORAN HASIL PENGUJIAN ANALISIS
REPORT OF FERTILIZER ANALYSIS

Nomor Lab. / *Lab. Number* : SP 7 L/LT-BPTP/I/2021

IDENTIFIKASI BAHAN UJI / *SUBJECT IDENTIFICATION*

Nama Bahan Uji / *Subject* : Kerang

Merek Sampel / *Sample Mark* : -

Keterangan Contoh / *Sample Description* : Plastik Bening

Produksi / *Production* : -

Tujuan Analisis / *The Purpose of Analysis* : Penelitian

Jumlah Sampel / *Sample Quantity* : 40 (Empat Puluh)

IDENTIFIKASI PELANGGAN / *CUSTOMER IDENTIFICATION*

Pelanggan / *Customer* : Abd. Gafur

Alamat / *Address* : Jl. Dg. Regge I No. 91

Telepon / *Phone* : +62-821-8705-2525

Tanggal Penerimaan / *Date of Registration* : 07 Januari 2021

Diterbitkan tanggal, 22 Februari 2021
Date of issue

Lab. BPTP P210107-1-IDN-310

Muhammad Asri, S.Si, M.Si
Technical Manajer

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3. *Complaint is not accepted after three months*

F.DP.5.10.7

Laboratorium Tanah, Tanaman, Pupuk, Air

BADAN PENELITIAN DAN PENGEMBANGAN PERTANIAN

BALAI PENGKAJIAN TEKNOLOGI PERTANIAN SULAWESI SELATAN

Jl.Dr. Ratulangi No. 272, Kel. Allepolea, Kec. Lau, Kab. Maros Sulawesi Selatan 90514
Telp. (0411) 371572 Fax. (0411) 371572; e-mail: lab_bptpsulsel@yahoo.co.id

SCIENCE . INNOVATION . NETWORK

Nomor Lab. : SP 7 L/LT-BPTP/I/2021
Lab. Number

No. Urut *Number*	Kode Sampel *Sample Code*	Parameter *Parameter*			Metode Pengujian *Analysis Method*
		Pb, ppm	Cd, ppm	Cr, ppm	
1	PK0 3.1	1,24	Tt	4,88	
2	PK0 3.2	1,29	Tt	4,85	
3	PK0 3.3	1,41	Tt	5,80	
4	PK0 3.4	1,57	Tt	5,65	
5	PK0 3.5	1,80	Tt	6,53	
6	PK1 3.1	1,89	Tt	6,94	
7	PK1 3.2	2,02	Tt	6,99	
8	PK1 3.3	2,31	Tt	7,26	
9	PK1 3.4	2,38	Tt	8,39	
10	PK1 3.5	2,66	Tt	7,95	
11	PK2 3.1	2,94	Tt	8,38	AAS
12	PK2 3.2	2,81	Tt	9,35	
13	PK2 3.3	2,95	Tt	8,61	
14	PK2 3.4	3,19	Tt	9,69	
15	PK2 3.5	3,09	Tt	9,80	
16	PK3 3.1	3,59	Tt	9,73	
17	PK3 3.2	3,52	Tt	10,46	
18	PK3 3.3	3,59	Tt	11,08	
19	PK3 3.4	3,45	Tt	10,22	
20	PK3 3.5	3,67	Tt	10,47	
21	PK0 4.1	4,29	Tt	10,92	
22	PK0 4.2	4,38	Tt	10,42	
23	PK0 4.3	3,84	Tt	10,73	
24	PK0 4.4	4,02	Tt	10,88	
25	PK0 4.5	4,38	Tt	10,23	

Keterangan : Tidak Terdeteksi

BADAN LITBANG - KEMENTERIAN PERTANIAN
P2107.2-IDN.310
LABORATORIUM BPTP SULAWESI SELATAN

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BADAN PENELITIAN DAN PENGEMBANGAN PERTANIAN

BALAI PENGKAJIAN TEKNOLOGI PERTANIAN SULAWESI SELATAN

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SCIENCE . INNOVATION . NETWORKS

Nomor Lab. : SP 7 L/LT-BPTP/I/2021
Lab. Number

No. Urut *Number*	Kode Sampel *Sample Code*	Parameter *Parameter*			Metode Pengujian *Analysis Method*
		Pb, ppm	Cd, ppm	Cr, ppm	
26	PK1 4.1	4,30	Tt	10,50	AAS
27	PK1 4.2	4,24	Tt	10,04	
28	PK1 4.3	4,43	Tt	10,16	
29	PK1 4.4	4,78	Tt	10,00	
30	PK1 4.5	4,62	Tt	9,57	
31	PK2 4.1	4,48	Tt	9,49	
32	PK2 4.2	4,80	Tt	9,81	
33	PK2 4.3	4,87	Tt	8,45	
34	PK2 4.4	4,83	Tt	7,95	
35	PK2 4.5	5,04	Tt	7,57	
36	PK3 4.1	4,81	Tt	7,10	
37	PK3 4.2	4,96	Tt	5,74	
38	PK3 4.3	5,16	Tt	5,62	
39	PK3 4.4	5,59	Tt	4,74	
40	PK3 4.5	5,13	Tt	3,90	

Keterangan : Tidak Terdeteksi

BADAN LITBANG - KEMENTERIAN PERTANIAN
P2101107-2-IDN-310
LABORATORIUM BPTP SULAWESI SELATAN

F.DP.5.10.7

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SCIENCE . INNOVATION . NETWORKS

LAPORAN HASIL PENGUJIAN AIR
REPORT OF FERTILIZER ANALYSIS

Nomor Lab. / *Lab. Number* : SP 108 A/LT-BPTP/XII/2020

IDENTIFIKASI BAHAN UJI
SUBJECT IDENTIFICATION

Nama Bahan Uji / *Subject* : Air

Merek Sampel / *Sample Mark* : -

Keterangan Contoh / *Sample Description* : Botol Plastik

Produksi / *Production* : -

Tujuan Analisis / *The Purpose of Analysis* : Penelitian

Jumlah Sampel / *Sample Quantity* : 20 (Dua Puluh)

IDENTIFIKASI PELANGGAN
CUSTOMER IDENTIFICATION

Pelanggan / *Customer* : Abd. Gafur

Alamat / *Address* : Jl. Dg. Regge I No. 91

Telepon / *Phone* : +62-821-8705-2525

Tanggal Penerimaan / *Date of Registration* : 22 Desember 2020

Diterbitkan tanggal / *Date of issue* : 07 Januari 2021

Lab. BPTP ID012108-1-IDN-310

Muhammad Asri, S.Si, M.Si
Technical Manager

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SCIENCE . INNOVATION . NETWORKS

Nomor Lab. / *Lab. Number* : SP 108 A/LT-BPTP/XII/2020

No. Urut / *Number*	Kode Sampel / *Sample Code*	Parameter / *Parameter*			Metode Pengujian / *Analysis Method*
		Pb, ppm	Cd, ppm	Cr, ppm	
1	PK 0.1.1	0,06	0,02	1,09	AAS
2	PK 0.1.2	0,13	0,01	1,17	
3	PK 0.1.3	0,25	Tt	1,14	
4	PK 0.1.4	0,10	0,02	1,21	
5	PK 0.1.5	0,33	0,01	1,33	
6	PK 1.1.1	0,10	0,01	1,68	
7	PK 1.1.2	0,09	Tt	1,90	
8	PK 1.1.3	0,05	Tt	1,81	
9	PK 1.1.4	0,04	Tt	1,76	
10	PK 1.1.5	0,08	Tt	1,72	
11	PK 2.1.1	0,06	0,06	2,07	
12	PK 2.1.2	0,07	Tt	2,00	
13	PK 2.1.3	0,13	0,001	1,88	
14	PK 2.1.4	0,19	Tt	2,37	
15	PK 2.1.5	0,20	Tt	2,40	
16	PK 3.1.1	0,11	Tt	2,43	
17	PK 3.1.2	0,08	Tt	2,36	
18	PK 3.1.3	0,12	Tt	2,11	
19	PK 3.1.4	0,05	Tt	2,24	
20	PK 3.1.5	0,29	Tt	2,19	

Keterangan : Tidak Terdeteksi

BADAN LITBANG - KEMENTERIAN PERTANIAN
P2012108-2-IDN-310
LABORATORIUM BPTP SULAWESI SELATAN

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F.DP.5.10.7

Laboratorium Tanah, Tanaman, Pupuk, Air

BADAN PENELITIAN DAN PENGEMBANGAN PERTANIAN

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SCIENCE . INNOVATION . NETWORKS

LAPORAN HASIL PENGUJIAN AIR
REPORT OF FERTILIZER ANALYSIS

Nomor Lab. / *Lab. Number* : SP 113 A/LT-BPTP/XII/2020

IDENTIFIKASI BAHAN UJI / *SUBJECT IDENTIFICATION*

Nama Bahan Uji / *Subject* : Air

Merek Sampel / *Sample Mark* : -

Keterangan Contoh / *Sample Description* : Botol Plastik

Produksi / *Production* : -

Tujuan Analisis / *The Purpose of Analysis* : Penelitian

Jumlah Sampel / *Sample Quantity* : 20 (Dua Puluh)

IDENTIFIKASI PELANGGAN / *CUSTOMER IDENTIFICATION*

Pelanggan / *Customer* : Abd. Gafur

Alamat / *Address* : Jl. Dg. Regge I No. 91

Telepon / *Phone* : +62-821-8705-2525

Tanggal Penerimaan / *Date of Registration* : 28 Desember 2020

Diterbitkan tanggal / *Date of issue* 18 Januari 2021

Lab. BPTP. P2012113-1-IDN-310

Muhammad Asri, S.Si, M.Si
Technical Manajer

Laboratorium Tanah, Tanaman, Pupuk, Air

BADAN PENELITIAN DAN PENGEMBANGAN PERTANIAN

BALAI PENGKAJIAN TEKNOLOGI PERTANIAN SULAWESI SELATAN

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SCIENCE . INNOVATION . NETWORKS

Nomor Lab. : SP 113 A/LT-BPTP/XII/2020
Lab. Number

No. Urut *Number*	Kode Sampel *Sample Code*	Parameter *Parameter*			Metode Pengujian *Analysis Method*
		Pb, ppm	Cd, ppm	Cr, ppm	
1	PK 0.2.1	0,61	0,06	1,85	AAS
2	PK 0.2.2	0,83	0,27	0,18	
3	PK 0.2.3	0,51	0,64	0,58	
4	PK 0.2.4	0,65	0,27	0,33	
5	PK 0.2.5	0,65	0,64	0,48	
6	PK 1.2.1	0,90	Tt	0,27	
7	PK 1.2.2	0,57	0,27	0,61	
8	PK 1.2.3	1,08	Tt	1,09	
9	PK 1.2.4	0,44	Tt	0,21	
10	PK 1.2.5	0,68	Tt	Tt	
11	PK 2.2.1	0,83	0,27	Tt	
12	PK 2.2.2	1,01	Tt	0,82	
13	PK 2.2.3	0,82	0,35	Tt	
14	PK 2.2.4	0,79	0,76	0.24	
15	PK 2.2.5	0,46	0,76	0.36	
16	PK 3.2.1	0,42	0,37	Tt	
17	PK 3.2.2	1,61	Tt	Tt	
18	PK 3.2.3	0,32	Tt	0,21	
19	PK 3.2.4	1,00	Tt	0,27	
20	PK 3.2.5	0,67	Tt	0,12	

Keterangan : Tt =Tidak Terdeteksi

P2012113-2-IDN-310

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F.DP.5.10.7

Laboratorium Tanah, Tanaman, Pupuk, Air

BADAN PENELITIAN DAN PENGEMBANGAN PERTANIAN

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SCIENCE . INNOVATION . NETWORKS

LAPORAN HASIL PENGUJIAN AIR
REPORT OF SOIL ANALYSIS

Nomor Lab. / *Lab. Number* : SP 8 A/LT-BPTP/I/2021

IDENTIFIKASI BAHAN UJI / *SUBJECT IDENTIFICATION*

Nama Bahan Uji / *Subject* : Air

Keterangan Contoh / *Sample Description* : Packing Botol Plastik

Jumlah Sampel / *Sample Quantity* : 40 (Empat Puluh)

Tujuan Analisis / *The Purpose of Analysis* : Penelitian

IDENTIFIKASI PELANGGAN / *CUSTOMER IDENTIFICATION*

Pelanggan / *Customer* : Abd. Gafur

Alamat / *Address* : Jl. Dg. Regge I No.91

Telepon / *Phone* : -

Tanggal Penerimaan / *Date of Registration* : 07 Januari 2021

Diterbitkan tanggal / *Date of issue* 24 Februari 2021

Lab. BPTP P2101081-IDN-310

Muhammad Asri, S.Si, M.Si

Technical Manajer

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F.DP.5.10.7

Laboratorium Tanah, Tanaman, Pupuk, Air

BADAN PENELITIAN DAN PENGEMBANGAN PERTANIAN

BALAI PENGKAJIAN TEKNOLOGI PERTANIAN SULAWESI SELATAN

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SCIENCE. INNOVATION. NETWORKS

Nomor Lab. / *Lab. Number* : SP 8 A/LT-BPTP/I/2021

No. Urut / *Number*	Kode Sampel / *Sample Code*	Parameter / *Parameter*			Metode Pengujian / *Analysis Method*
		Pb (ppm)	Cd (ppm)	Cr (ppm)	
1	PK0 3.1	1,60	Tt	0,17	
2	PK0 3.2	1,79	Tt	1,00	
3	PK0 3.3	0,23	Tt	1,04	
4	PK0 3.4	2,98	Tt	1,92	
5	PK0 3.5	2,30	Tt	1,83	
6	PK1 3.1	2,00	Tt	2,38	
7	PK1 3.2	2,33	Tt	2,46	
8	PK1 3.3	2,33	Tt	3,00	
9	PK1 3.4	1,74	Tt	3,17	
10	PK1 3.5	4,33	Tt	3,58	AAS
11	PK2 3.1	Tt	Tt	3,96	
12	PK2 3.2	3,14	Tt	4,42	
13	PK2 3.3	2,37	Tt	0,08	
14	PK2 3.4	1,09	Tt	1,04	
15	PK2 3.5	3,93	Tt	1,54	
16	PK3 3.1	3,26	Tt	1,88	
17	PK3 3.2	3,12	Tt	2,21	
18	PK3 3.3	3,44	Tt	2,33	
19	PK3 3.4	4,47	Tt	2,71	
20	PK3 3.5	5,21	Tt	3,79	
21	PK0 4.1	4,79	Tt	4,00	
22	PK0 4.2	4,51	Tt	4,38	
23	PK0 4.3	3,47	Tt	4,83	
24	PK0 4.4	5,00	Tt	5,04	

Ket : Tt = Tidak Terdeteksi

BADAN LITBANG · KEMENTERIAN PERTANIAN
12 P210108 2 DN-310
LABORATORIUM BPTP SULAWESI SELATAN

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Laboratorium Tanah, Tanaman, Pupuk, Air

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BALAI PENGKAJIAN TEKNOLOGI PERTANIAN SULAWESI SELATAN

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SCIENCE . INNOVATION . NETWORKS

Nomor Lab. / *Lab. Number* : SP 8 A/LT-BPTP/I/2021

No. Urut / *Number*	Kode Sampel / *Sample Code*	Parameter / *Parameter*			Metode Pengujian / *Analysis Method*
		Pb (ppm)	Cd (ppm)	Cr (ppm)	
25	PK0 4.5	3,56	Tt	0,04	
26	PK1 4.1	3,74	Tt	0,88	
27	PK1 4.2	5,35	Tt	1,13	
28	PK1 4.3	5,23	Tt	1,58	
29	PK1 4.4	4,47	Tt	2,46	
30	PK1 4.5	4,49	Tt	3,58	
31	PK2 4.1	5,19	Tt	4,21	AAS
32	PK2 4.2	5,42	Tt	5,13	
33	PK2 4.3	5,14	Tt	5,46	
34	PK2 4.4	5,44	Tt	5,71	
35	PK2 4.5	5,12	Tt	6,67	
36	PK3 4.1	5,21	Tt	7,46	
37	PK3 4.2	5,28	Tt	0,38	
38	PK3 4.3	3,53	Tt	1,04	
39	PK3 4.4	5,63	Tt	2,42	
40	PK3 4.5	5,12	Tt	3,17	

Ket : Tt = Tidak Terdeteksi

P210108-2-IDN-310

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F.DP.5.10.7

Lampiran : Data Pengukuran Kualitas Air

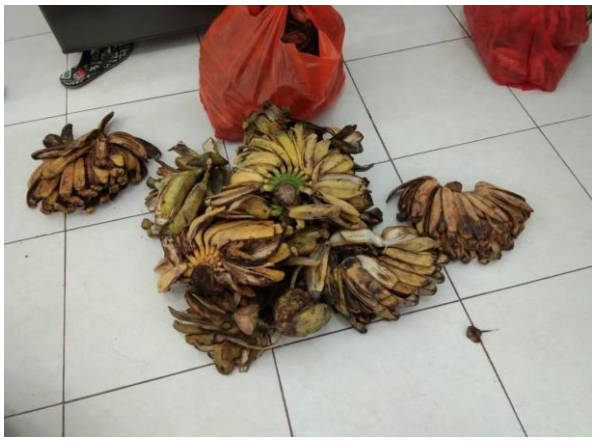
Perlakuan	Waktu (Jam)	Suhu (°C)				pH				Salinitas (ppt)			
		Pengulangan				Pengulangan				Pengulangan			
		1	2	3	4	1	2	3	4	1	2	3	4
Kontrol	5 Jam	26,6	25,9	24,2	21,2	4,27	4,41	4,81	4,84	0,01	0,01	0,01	0,01
	10 Jam	26,6	26,1	25,0	21,4	4,29	4,37	4,18	4,47	0,01	0,02	0,03	0,02
	15 Jam	25,8	26,2	25,3	23,4	4,32	4,41	4,10	4,34	0,01	0,02	0,04	0,02
	20 Jam	25,7	21,9	25,7	24,3	4,31	4,24	4,18	4,10	0,01	0,03	0,03	0,03
	25 Jam	25,5	21,4	22,1	24,6	4,30	3,97	4,20	4,18	0,01	0,04	0,03	0,04
1 Sisir (995 gram)	5 Jam	26,0	25,7	24,2	24,8	4,09	4,15	4,27	4,31	0,01	0,02	0,02	0,03
	10 Jam	26,2	25,4	25,1	24,7	4,04	4,16	4,16	4,24	0,01	0,02	0,02	0,02
	15 Jam	25,6	25,1	25,1	24,2	4,04	4,07	4,02	4,18	0,01	0,03	0,03	0,03
	20 Jam	25,3	25,3	25,7	23,7	3,81	3,76	3,55	3,60	0,01	0,02	0,04	0,03
	25 Jam	24,9	23,4	22,3	23,4	3,03	3,65	3,29	3,55	0,01	0,03	0,04	0,03
2 Sisir (1.990 gram)	5 Jam	26,0	24,8	24,7	23,9	3,76	3,73	3,82	3,78	0,01	0,03	0,04	0,02
	10 Jam	26,0	24,8	25,0	23,4	3,80	3,88	3,75	3,69	0,02	0,02	0,02	0,04
	15 Jam	25,0	24,2	25,3	24,2	3,58	3,75	3,65	3,54	0,02	0,03	0,03	0,05
	20 Jam	25,1	22	25,5	23,8	3,84	3,89	3,39	3,47	0,02	0,03	0,05	0,06
	25 Jam	24,7	21,6	22,6	23,4	3,87	3,65	3,16	3,38	0,03	0,02	0,06	0,08
3 Sisir (2.985 gram)	5 Jam	25,9	21,9	25,1	24,9	4,0	3,37	4,12	4,20	0,01	0,02	0,02	0,03
	10 Jam	26,1	22,1	25,1	24,8	3,98	3,25	3,81	3,20	0,01	0,03	0,03	0,03
	15 Jam	26,0	22,3	25,5	24,6	2,89	2,87	2,55	2,77	0,02	0,04	0,03	0,05
	20 Jam	25,7	22,2	26,1	23,7	2,86	1,57	1,25	1,35	0,03	0,05	0,05	0,06
	25 Jam	24,6	21,7	23,1	23,6	1,43	1,54	1,21	1,23	0,05	0,04	0,06	0,08

Lampiran : Jumlah Sampel Kerang mati

Perlakuan	Waktu (Jam)	Jumlah Kerang	Jumlah Kerang yang Mati				Jumlah Akhir Kerang
			Pengulangan				
			1	2	3	4	
Kontrol	5 Jam	40	-	-	-	-	40
	10 Jam	40	-	-	-	-	40
	15 Jam	40	-	-	-	-	40
	20 Jam	40	-	-	-	1	39
	25 Jam	40	-	-	1	1	38
1 Sisir (995 gram)	5 Jam	40	-	-	-	-	40
	10 Jam	40	-	1	-	-	39
	15 Jam	40	1	-	1	1	37
	20 Jam	40	-	-	2	2	36
	25 Jam	40	1	1	1	1	36
2 Sisir (1.990 gram)	5 Jam	40	-	-	1	-	39
	10 Jam	40	1	-	1	1	37
	15 Jam	40	-	1	1	1	37
	20 Jam	40	2	1	2	2	33
	25 Jam	40	1	2	1	2	34
3 Sisir (2.985 gram)	5 Jam	40	-	-	1	2	37
	10 Jam	40	-	1	2	1	36
	15 Jam	40	1	1	2	2	34
	20 Jam	40	1	2	2	1	34
	25 Jam	40	2	2	2	2	32
	Jumlah	800	10	12	20	20	738

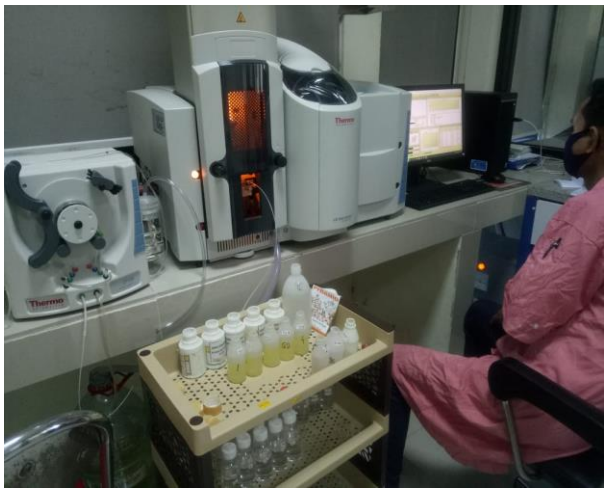
Lampiran : Dokumentasi Penelitian

Kerang Darah (*Anadara granosa*)



Kulit Pisang Kepok

Perendaman Kerang Darah (*Anadara granosa*) dengan Kulit Pisang Kepok



Pemeriksaan Kandungan Logam Berat pada Kerang dengan The Thermo Scientific™ iCE™ 3500 AA

CURRICULUM VITAE

IDENTITAS PRIBADI

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3.	Jenis Kelamin	:	Laki-laki
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A. Riwayat Pendidikan

199	:	Tamat SD Negeri 71 Rappo Jawa Kota Makassar
1995	:	Tamat SMP Datuk Ribandang Kota Makassar
1998	:	Tamat SMU Negeri 5 Makassar
2004	:	Sarjana (S1) Kesehatan Lingkungan FKM-Unhas
2009	:	Magister (S2) Kesehatan Lingkungan Program Studi Ilmu Kesehatan Masyarakat PPS Universitas Hasanuddin
2021	:	Doktor Ilmu Kesehatan Masyarakat bidang Konsentrasi Kesehatan Masyarakat/Lingkungan Universitas Hasanuddin

B. Riwayat Pekerjaan/Jabatan

2007	:	Konsultan Center for Communication Programs (CCP)-John Hopkins Bloomberg School of Public Health
2009-2010	:	Dosen Akbid Salewangan Maros
2010-Sek	:	Dosen Yayasan Wakaf UMI Makassar
2011-2013	:	Dosen Luar Biasa di UIN Alauddin Makassar
2010-2012	:	Dosen Luar Biasa di Stitek Nusindo Makassar
2013-Sek	:	Tenaga Ahli Kesehatan Masyarakat PT Antariksa Globalindo

2017–2021 : Kepala Laboratorium Terpadu Kesehatan Masyarakat FKM-UMI
2018-Sek : Tenaga Ahli Kesehatan Masyarakat CV Muara Saddang

C. Pengalaman Organisasi

2011-2013 : Pengurus Cabang IAKMI Makassar Periode 2011-2013 pada Divisi Pengabdian Masyarakat
2015-2019 : Pengurus Cabang Perhimpunan Sarjana Kesehatan Masyarakat Indonesia (PERSAKMI) Kota Makassar Periode Tahun 2015-2019 pada Bidang Humas
2018-2021 : Pengurus Environmental Health Specialist Association (EHSA) Indonesia Cabang Sulawesi Selatan pada Bidang Environmental Health and Safety
2019-2024 : Pengurus Himpunan Ahli Kesehatan Lingkungan Provinsi Sulawesi Selatan 2019-2024 pada Departemen Pengembangan Organisasi dan Advokasi Profesi
2019-Sek. : Anggota Himpunan Ahli Kesehatan Lingkungan (HAKLI) dengan nomor KTA 737112287

D. Pengalaman Penelitian

2004 : Analisis Faktor yang Mempengaruhi Densitas Jentik Nyamuk *Aedes aegypti* di Wilayah Kerja Puskesmas Jumpandang Baru Tahun 2004 (Skripsi)
2008 : Analisis Kualitas Air PDAM dan Isi Ulang di Kota Makassar (Anggota)
2009 : Analisis Kadar Ion Kromium (Cr) Dalam Sedimen dan Kerang Darah (Anadara granosa) Serta Dalam Urine Masyarakat Nelayan di Lantebung Kelurahan Bira Kota Makassar (Tesis).
2014 : Efisiensi Instalasi Pengolahan Air Limbah Terhadap Kualitas Limbah Cair Rumah Sakit Haji Makassar Tahun 2014
2015 : Faktor yang Berhubungan dengan Keberadaan Jentik Nyamuk *Aedes aegypti* di Kelurahan Batua Kota Makassar Tahun 2015.
2016 : Hubungan Tempat Penampungan Air dengan Keberadaan Jentik Aedes aegypti di Perumahan Dinas Type E Desa Motu Kecamatan Baras Kabupaten Mamuju Utara
2016 : Studi Pengolahan Air Limbah RS. Pelamonia Dan RSUP. Dr. Wahidin Sudirohusodo Makassar Tahun 2016
2016 : Studi Kualitas Fisik Kimia dan Biologis pada air minum dalam kemasan berbagai merek yang beredar di Kota Makassar tahun 2016
2016 : Analisis Personal Hygiene Dan Sanitasi Lingkungan Antara Petani Rumput Laut Dan Pekerja Kepiting Terhadap Keluhan

Penyakit Kulit Di Wilayah Pesisir Maccini Baji Kabupaten Pangkep

2016 : Hubungan Personal Hygiene Dengan Keluhan Penyakit Kulit Di Wilayah Pesisir Maccini Baji Kabupaten Pangkep

2017 : Efisiensi Pengolahan Limbah Cair RS Pelamonia Makassar dan RSUD Syekh Yusuf Gowa Tahun 2017

2017 : Pengolahan Dan Kualitas Limbah Cair Hotel Swiss-Bell Panakukkang Di Kota Makassar Tahun 2017

2018 : Determinant of Dermatitis Occurrence At Rappokalling Health Center Makassar city

2019 : Analisis Risiko Kandungan Logam Berat Timbal (Pb) pada Kerang Hijau (Perna viridis) di Sungai Tallo Kota Makassar Tahun 2019

2020 : Bioakumulasi Logam Berat Kadmium (Cd) dan Kromium (Cr) yang Terdapat dalam Air dan Ikan di Sungai Tallo Makassar

2020 : Biokonsentrasi Logam Berat Timbal, Arsen pada Air dan Ikan Sungai Tallo Kota Makassar

2020 : Mercury Pollution in The Aquatic System Near of Urban Artisanal Gold Mining (UAGM) Activity in Makassar, South Sulawesi, Indonesia

2020 : Environmental Health Risk Assessment (EHRA) of Ammonia (NH_3) Exposure to Scavengers at Tamangapa Landfill

2020 : Analisis Risiko Kesehatan Lingkungan Pajanan Debu Kayu pada Pekerja Mebel Informal di Kelurahan Antang Kecamatan Manggala Kota Makassar

2021 : Depurasi Perendaman Kerang Darah (*Anadara granosa)* Dengan Kulit Pisang Kepok (*Musa cuminate Balbisiana Colla)* Terhadap Efisiensi Removal Kandungan Logam Berat Timbal (Pb) dan Kromium (Cr) (Disertasi)

2021 : Contamination Of Heavy Metals (Pb And Cr) And Safety Level For Consumption Blood Cockle (Anadara Granosa) From Makassar Strait Waters

E. Pengabdian Pada Masyarakat

2016 : IbM Sekolah Luar Biasa (SLB) Anak Gangguan *Autism Spectrum Disorder* Di Kota Makassar

2017 : PkM Pengembangan Pos Kesehatan Pesantren (Poskestren) Di Yayasan Wakaf Umi Pesantren Wihdatul Ulum Desa Bontokassi, Kec. Parangloe, Kab. Gowa Tahun 2017

2017 : Pelatihan Pembentukan Pos Kesehatan Pesantren (Poskestren) di Pesantren Wihdatul Ulum 2017 (Pemateri)

F. Workshop/Training/Course /Seminar/Lokakarya/Simposium

2001 : Workshop Problem Solving for Better Health (PSBH), 19 s.d 20 Mei 2001 (Participant)
2007 : Pelatihan ARKL di Makassar, Mei 2007
2010 : Pelatihan Peningkatan Keterampilan Dasar Teknik Instruksional (PEKERTI), 13 s.d 18 Desember 2010
2011 : Workshop Metodologi Penelitian Tingkat Elementary dan Penulisan Karya Ilmiah Layak Publikasi. LP2S UMI, 24-27 Desember 2011
2012 : Workshop Pengelolaan Jurnal Terakreditasi. FIK UIN Alauddin Makassar, 14 April 2012 (participant)
2012 : Workshop Penulisan Karya Tulis Ilmiah untuk Jurnal Terakreditasi. FIK UIN Alauddin Makassar, 15 April 2012 (participant)
2012 Pelatihan Penulisan Jurnal Terakreditasi dan Penulisan Buku Ajar, 4 s.d 5 September 2012 (Participant)
2012 : Workshop Sistem Informasi Geografi untuk Kesehatan Masyarakat, 28 s.d 30 September 2012 (Participant)
2013 : Pelatihan Persiapan Akreditasi Laboratorium Terpadu FKM UNHAS
2013 : International Seminar "Heavy Metal Pollution and Health Problem in Indonesia" Makassar, August 28th 2013 (participant)
2014 : Pelatihan Penulisan Artikel dan Pengelolaan Jurnal, 20 Januari 2014
2014 : Workshop Pengabdian kepada Masyarakat, 17 April 2014 (participant)
2016 : Workshop Penulisan Buku Ajar, 22 s.d 24 Januari 2016 (participant)
2016 : Pelatihan Applied Approach 31 Oktober s.d 03 November 2016
2016 : Analisis Personal Hygiene Dan Sanitasi Lingkungan Antara Petani Rumput Laut Dan Pekerja Kepiting Terhadap Keluhan Penyakit Kulit Di Wilayah Pesisir Maccini Baji Kabupaten Pangkep pada acara Konas IAKMI XIII di Makassar 3-5 November 2016 (Presenter)
2017 : Pendidikan dan Pelatihan Dasar-dasar AMDAL, 31 Oktober s.d 4 November 2017 (participant)
2018 : Workshop Analisis Risiko Kesehatan Lingkungan dan Kesehatan Kerja, 24 s/d 25 Oktober 2018 (participant)
2019 : Pelatihan Pola Pembinaan dan Pengembangan Ukhuwah (P3U) Tingkat Dasar (participant)
2019 : Seminar on Human Health Impact of Heavy Metals 1st Japan Asean Medical, 03 Mei 2019. (participant)
2019 : Analysis of Microplastic Contamination on Green Shellfish (Perna varidis) on the Tallo River in Makassar City in 2019, The 2nd International Conference on Industrial Technology for

Sustainable Development, on 22-23 August 2019. (Presenter)

2019 : Workshop Penelitian Kualitatif dengan NViro 12 Plus (participant)

2020 : Pelatihan Penyusunan UKL-UPL, 29 Juli 2020 (participant)

2020 : Pelatihan Penyusun Dokumen Penyajian Informasi Lingkungan, 06 Agustus 2020 (participant)

2021 : Seminar Kegiatan Sosialisasi Peraturan Pemerintah No. 22 Tahun 2021 Tentang Penyelenggaran Perlindungan dan Pengelolaan Lingkungan Hidup (participant)

2021 : Seminar Parameter Kunci Aspek Kesehatan Masyarakat Dalam Penyusunan Dokumen Amdal Dewan Pengurus Nasional Perkumpulan Tenaga Ahli Lingkungan Hidup Indonesia, 27 April 2021 (participant)

G. Daftar Jurnal /Publication (Nasional & Internasiaonal)

2014 : Efisiensi Instalasi Pengolahan Air Limbah Terhadap Kualitas Limbah Cair Rumah Sakit Haji Makassar Tahun 2014 (Higiene, Volume 1, No. 1, Januari—April 2015 ISSN : 2443—1141)

2015 : Faktor yang Berhubungan dengan Keberadaan Jentik Nyamuk *Aedes aegypti* di Kelurahan Batua Kota Makassar Tahun 2015 (Al shihah Public Health Science Journal Volume 7, Nomor 1, Tahun 2015 ISSN-P : 2086-2040, ISSN-E : 2548-5334 https://doi.org/10.24252/as.v7i1.1977)

2016 : Hubungan Tempat Penampungan Air dengan Keberadaan Jentik Aedes aegypti di Perumahan Dinas Type E Desa Motu Kecamatan Baras Kabupaten Mamuju Utara (Higiene, Volume 1, No. 2, Mei—Agustus 2015 ISSN : 2443—1141)

2016 : Studi Pengolahan Air Limbah RS. Pelamonia Dan RSUP. Dr. Wahidin Sudirohusodo Makassar Tahun 2016 (Celebes Enviromental Science Journal Vol 1 No 1 (2019)

2016 : Studi Kualitas Fisik Kimia dan Biologis pada air minum dalam kemasan berbagai merek yang beredar di Kota Makassar tahun 2016 (Higiene, Volume 3, No. 1, Januari-April 2017 ISSN (Print) : 2443-1141 ISSN (Online) : 2541-5301)

2017 : Efisiensi Pengolahan Limbah Cair RS Pelamonia Makassar dan RSUD Syekh Yusuf Gowa Tahun 2017 (Celebes Enviromental Science Journal Vol 1 No 1 (2019)

2017 : Pengolahan Dan Kualitas Limbah Cair Hotel Swiss-Bell Panakukkang Di Kota Makassar Tahun 2017 (Celebes Enviromental Science Journal Vol 1 No 1 (2019)

2018 : Determinant of Dermatitis Occurrence At Rappokalling Health Center Makassar city (Window of Health: Jurnal Kesehatan Vol. 1 No. 1 (Januari, 2018) E-ISSN : 2614-5375)

2020 : Bioakumulasi Logam Berat Kadmium (Cd) dan Kromium (Cr)

yang Terdapat dalam Air dan Ikan di Sungai Tallo Makassar (Window of Health: Jurnal Kesehatan Volume 1 Nomor 3 (Oktober, 2020)

2020 : Biokonsentrasi Logam Berat Timbal, Arsen pada Air dan Ikan Sungai Tallo Kota Makassar (Window of Health: Jurnal Kesehatan Volume 1 Nomor 4 (Desember, 2020)

2020 : Analisis Risiko Kesehatan Lingkungan Pajanan Debu Kayu pada Pekerja Mebel Informal di Kelurahan Antang Kecamatan Manggala Kota Makassar (Window of Health: Jurnal Kesehatan Volume1 nomor 6 (April 2021)

2021 : Contamination Of Heavy Metals (Pb And Cr) And Safety Level For Consumption Blood Cockle (Anadara Granosa) From Makassar Strait Waters (Journal of Environmental Engineering (Japan) Publiher-Architectural Institute of Japan Online ISSN-1881817X, 13480685 Vol 16 issue -1, July 2021)

2021 : Removal Efficiency Heavy Metal Content of Lead (Pb) and Chromium (Cr) in Blood Cockle (Anadara granosa) with Depuration of Soaking Kepok Banana Peel (Musa Acuminata Balbisiana Colla) (Journal of Environmental Engineering (Japan) Publiher-Architectural Institute of Japan Online ISSN-1881817X, 13480685 Vol 17 issue -1, August 2021)

H. Penyusun AMDAL

Tahun		Jenis Kegiatan	Kedudukan
2016	:	Kerangka Acuan (KA) Rencana Pembangunan Bandar Udara Sobaham, Distrik Sobaham Kabupaten Yahukimo Provinsi Papua.	Tenaga Ahli Kesehatan Masyarakat
2016	:	Kerangka Acuan Analisis Dampak Lingkungan Hudup (KA-ANDAL) Rencana Kegiatan Pembangunan Jalur kereta Api Antara Stadion Mandala-Sentani Tahun 2016	Tenaga Ahli Kesehatan Masyarakat
2017	:	Penyusunan AMDAL RSUD Tenriawaru Kabupaten Bone	Tenaga Ahli Kesehatan Masyarakat
2017	:	Studi AMDAL Rencana Kegiatan Pembangunan Ruas Jalan Akses pelabuhan Nelayan Untia Makassar	Tenaga Ahli Kesehatan Masyarakat
2017	:	Dokumen Evaluasi Lingkungan Hidup (DELH) PPI Tulandale Rote Ndao, Nusa Tenggara Timur.	Tenaga Ahli Kesehatan Masyarakat
2018	:	Kerangka Acuan Rencana Penambangan Emas di Kec. Cendana dan Kec. Enrekang Kab. Enrekang.	Tenaga Ahli Kesehatan Masyarakat
2018	:	Kerangka Acuan Kegiatan Pembangunan T/L 275 kV	Tenaga Ahli

		Enrekang - Palopo dan GITET Terkait	Kesehatan Masyarakat
2018	:	Penyusunan Dokumen ANDAL, RKL dan RPL Pembangunan Bandar Udara Gorom Desa Kataloka Kecamatan Pulau Gorom Kabupaten Seram Bagian Timur Provinsi Maluku	Tenaga Ahli Kesehatan Masyarakat
2018	:	Penyusunan DLH Jalan Provinsi Sulawesi Selatan Wilayah V.	Tenaga Ahli Kesehatan Masyarakat
2019	:	Penyusunan Adendum AMDAL Pengembangan Kawasan Wisata Pantai Bira Kabupaten Bulukumba	Tenaga Ahli Kesehatan Masyarakat
2020	:	Penyusunan Dokumen ANDAL, RKL & RPL Rencana Pembangunan Sungai Lumu Di Kecamatan Budong Budong dan Kecamatan Pangale Kabupaten Mamuju Tengah Provinsi Sulawesi Selatan.	Tenaga Ahli Kesehatan Masyarakat
2021	:	Penyusunan Dokumen Addendum ANDAL, dan RKL-RPL Pengembangan Sistem Penyediaan Air Minum (SPAM) Regional Pasigala Provinsi Sulawesi Tengah.	Tenaga Ahli Kesehatan Masyarakat

Makassar, 1 Mei 2020

Abd. Gafur Djafri, SKM, M.Kes.