

## DAFTAR PUSTAKA

- Anuar, K., Zul, D., and Fitmawati. xxxx. *Potensi Limbah Sagu (*Metroxylon sp.*) DI Kecamatan Tebing Tinggi Barat Kabupaten Kepulauan Meranti Sebagai Substrat Penghasil Biogas*. Pekan Baru: Fakultas Matematika dan Ilmu Pengetahuan Alam Kampus Binawidya.
- Barus, N. D., R. Zein., and Syukri. 2017. *Penjernihan Air Sumur Menjadi Air Layak Pakai Dengan Memanfaatkan Karang Dan Cangkang Langkitang (Faunus Ater) Menggunakan Kolom*. Padang: Universitas Andalas.
- Cheah, W. Y., P. L. Show., J.C. Juan., J. S. Chang., and T. C. Ling. 2018. *Microalgae cultivation in palm oil mill effluent (POME) for lipid production and pollutants removal*. Energy Conversion and Management 174: 430–438.
- Dharma, U.S. and G. Prasetyo. 2012. *Pengaruh Perubahan Laju Alir Terhadap Tekanan dan Jenis Aliran Yang Terjadi Pada Alat Uji Praktikum Mekanika Fluida*. ISSN 2301-6663 Volume 1 No. 2.
- Djatmiko, B., S. Ketaren., and S. Setyahartini. 1985. Pengolahan Arang dan Kegunaannya. Bogor : Agro Industri Press.
- Fauzia, S., H. Aziz., D. Dahlan., and R. Zein. 2018. *Study of Equilibrium, Kinetic and Thermodynamic for Removal of Pb(II) in Aqueous Solution Using Sago Bark (*Metroxylon sago*)*. Amerika. American Institute of Physics.
- Ginting, H. A., J. A. Rorong., and A. D. Wuntu. 2016. *Efek Ekstrak Limbah Cair Empulur Batang Sagu Baruk (Arenga microcarpha) Terhadap Fotoreduksi Besi(III)*. Jurnal MIPA UNSRAT Online 5 (1): 44-48.
- Ginting, S. Br., S. D. Syukur and Y. Yulia. 2017. *Kombinasi Adsorben Biji Kelor-Zeolit Alam Lampung Untuk Meningkatkan Efektivitas Penjerapan*

*Logam Pb Dalam Air Secara Kontinu Pada Kolom Fixed Bed Adsorber.* Jurnal Rekayasa Proses, Vol. 11, No.1, 1-11.

Indah, S., and Rohaniah, 2014. *Studi Regenerasi Adsorben Kulit Jagung (zea mays L.) dalam Menyisihkan Logam Besi (Fe) dan Mangan (Mn) dari Air Tanah.* Jurnal Teknik Lingkungan UNAND 11 (1) : 48-58.

Iqbal, A., S. Sabar., M. K. Mun-Yee., M. N. N. Asshifa., A. R. M. Yahya., and F. Adam. 2018. *Pseudomonas aeruginosa USM-AR2/SiO<sub>2</sub> biosorbent for the adsorption of methylene blue.* Journal of Environmental Chemical Engineering 6: 4908–4916.

Istighfarini, S.A.E., S. Daud, E. Hs. 2017. *Pengaruh Massa dan Ukuran Partikel Adsorben Sabut Kelapa Terhadap Effisiensi Penyisihan Fe Pada Air Gambut.* Jom FTETEKNIK Vol 4 No.1.

Jaguaribe, E.F., L. L. Medeiros., M. C. S. Barreto., and L. P. Araujo. 2005. *The Performance of activated carbons from sugarcane bagasse, babassu, and coconut shells in removing residual chlorine.* Brazillian J. of Chem Eng 22: 41- 47.

Leimkuehler, E. P. 2010. *Production, Characterization, and Applications of Activated Carbon.* Thesis, Faculty of the Graduate School, University of Missouri.

Lestari, I., N. T. Yesicha and F. Farid. 2019. *Amobilisasi Biji Durian (Durio Zibethinus) Dalam Ca-Alginat Sebagai Biosorben Zat Warna Metilen Biru.* Chempublish Journal Vol.4 No.1, 19-29.

Liew, W. L., M. A. Kassim., K. Muda., S. K. Loh., and A. C. Affam. 2015. *Conventional methods and emerging wastewater polishing technologies for palm oil mill effluent treatment: A review.* Journal of Environmental Management 149, 222-235.

Merantika, D. A., R. Zein., and Y. Yetri. 2018. *Perbaikan Kualitas Air Sumur Kotor Menjadi Air Bersih Menggunakan Karbon Aktif Kulit Buah Kakao (Theobroma cacao L.)*. Padang: Universitas Andalas.

Mohd-Nor, D., N. Ramli., S. S. Sharuddin., M. A. Hasan., N.A. Mustapha., A. Amran., K. Sakai., Y. Shirai., and T. Maeda. 2018. *Alcaligenaceae and Chromatiaceae as reliable bioindicators present in palm oil mill effluent final discharge treated by different biotreatment processes*. Ecological Indicators 95: 468–473.

Peng, S. H., R. Wang., L. Z. Yang., L. He., X. He., and X. Liu. 2018. *Biosorption of copper, zinc, cadmium and chromium ions from aqueous solution by natural foxtail millet shell*. Ecotoxicology and Environmental Safety 165 : 61–69.

Permen Lingkungan Hidup. 2014. *batas maksimal kadmangan air limbah industri minyak..* Permen-LH 5-2014

Phoon, K. Y., H. Suan Ng., R. Zakaria., H. S. Yim., and M. N. Mokhtar. 2018. *Enrichment of minor components from crude palm oil and palm-pressed mesocarp fibre oil via sequential adsorption-desorption strategy*. Industrial Crops & Products 113: 187–195.

Pootao, S., and K. Kanjanapongkul. 2016. *Effects of ohmic pretreatment on crude palm oil yield and key qualities*. Journal of Food Engineering 190: 94-100.

Pratiwi, I., R. Zein., and H. Aziz. 2016. *Pemanfaatan Cangkang Langkitang (Faunus Ater) Sebagai Biosorben Ion Logam Cd(II) dan Cr(VI)*. Padang: Universitas Andalas.

Purnawati, H., and B. Utami. 2014. *Pemanfaatan Limbah Kulit Buah Kakao (Theobroma Cacao L.) Sebagai Adsorben Zat Warna Rhodamin B*. Surakarta : Universitas Sebelas Maret.

Rodrigues, T. O., A. Caldeira-Pires., S. Luz., and C. A. Frate. 2014. *GHG balance of crude palm oil for biodiesel production in the northern region of Brazil*. Renewable Energy 62: 516-521.

Safa, Y., and H. N. Bhatti. 2011. *Biosorption of Direct Red-31 and Direct Orange-26 dyes by rice husk: Application of factorial design analysis.* chemical engineering research and design 89: 2566–2574.

Sanjaya, Y. M., R., and Syukri. 2018. *pembuatan Adsorben Dari Perlite (Geotermal Yang Dimodifikasi Dengan Zat Aktif Cangkang Langkitang Untuk Penjernihan Air Sumur.* Padang: Universitas Andalas.

Sedlakova-Kadukovaa, J., A. Kopcakova., L. Gresakova., A. Godany., and P. Pristas. 2019. *Bioaccumulation and biosorption of zinc by a novel Streptomyces K11 strain isolated from highly alkaline aluminium brown mud disposal site.* Ecotoxicology and Environmental Safety 167 : 204–211.

Singh, N., A. Kumari., and C. Balomajumder. 2018. *Modeling studies on mono and binary component biosorption of phenol and cyanide from aqueous solution onto activated carbon derived from saw dust.* Saudi Journal of Biological Sciences 25 : 1454–1467.

Singhal, R. S., J. F. Kennedy., S. M. Gopalakrishnan., A. Kaczmarek., C. J. Kinill., and P. F. Akmar. 2008. *Industrial production, processing, and utilization of sago palm-derived products.* Carbohydrate Polymers 72, 1–20.

Standar Nasional Indonesia (SNI). 1995. *SNI-06-3730-1995: Arang Aktif Teknis.* Jakarta: Badan Standardisasi Nasional.

Standar Nasional Indonesia (SNI). 2004. *Cara Uji Padatan Tersuspensi Total (Total Suspended Solid) Secara Gravimetri.* SNI 06-6989.11-2004.

Standar Nasional Indonesia (SNI). 2009. *Cara Uji Kebutuhan Oksigen Biokimia (Biological Oxygen Demand).* SNI 72-6989-2009.

Standar Nasional Indonesia (SNI). 2009. *Cara Uji Kebutuhan Oksigen Kimia (Chemical Oxygen Demand) dengan Refluks Tertutup Secara Spektrofotometri*. SNI 73-6989-2009.

Subramaniam, V., and Z. Hashim. 2018. *Charting the water footprint for Malaysian crude palm oil*. Journal of Cleaner Production 178: 675-687.

Supriyatno, B. 2000. *Pengelolaan Air Limbah Yang Berwawasan lingkungan Suatu Strategi dan Langkah Penanganannya*. Jurnal teknologi lingkungan, Vol 1, No. 1: 17-26.

Suwanno, S., T. Rakkan., T. Yunu., N. Paichid., P. Kimtun., P. Prasertsan., and K. Sangkharak. 2017. *The production of biodiesel using residual oil from palm oil mill effluent and crude lipase from oil palm fruit as an alternative substrate and catalyst*. Fuel 195: 82–87.

Sy, Salmariza, Sofyan1, H. Muchtar, dan M. Kasman. 2017. *Pengaruh Laju Alir Inlet Reaktor MSL Terhadap Reduksi BOD, COD, TSS, dan Minyak/Lemak Limbah Cair Industri Minyak Goreng*. Jurnal Litbang Industri Vol. 7 No. 1, Juni 2017: 41-51.

Taba, P., N. L. Nafie., St. Fauziah., Mildayati and Maryam. 2009. *BIOSORPSI ION Ni(II) DAN Cr(VI) OLEH AMPAS SAGU*. J. Sains MIPA, Vol. 15, No. 3, Hal.: 141 - 148 ISSN: 1978-1873.

Tabaraki, R., and E. Heidarizadi. 2018. *Simultaneous biosorption of Arsenic (III) and Arsenic (V): Application of multiple response optimizations*. Ecotoxicology and Environmental Safety 16: 35–41.

Theerachat, M., P. Tanapong., and W. Chulalaksananukul. 2017. *The culture or co-culture of Candida rugosa and Yarrowia lipolytica strain rM-4A, or incubation with their crude extracellular lipase and laccase preparations, for the biodegradation of palm oil mill wastewater*. International Biodeterioration & Biodegradation 121: 11-18.

Triyana, M. and T. Sarma. 2003. *Arang Aktif (Pengenalan dan Proses Pembuatannya)*. Jurusan Teknik Industri. Universitas Sumatera Utara.

Wahi, R., L. A. Chuah., Z. Ngaini., and M. M. Nourouzi. 2014. *Esterification of M. sagu bark as an adsorbent for removal of emulsified oil*. Journal of Environmental Chemical Engineering 2: 324–331.

Wong, Y. S., T.T. Teng., S. A. Ong., M. Norhashimah., M. Rafatullah., and J. Y. Leong,. 2013. *Methane gas production from palm oil wastewater—An anaerobic methanogenic degradation process in continuous stirrer suspended closed anaerobic reactor*. Journal of the Taiwan Institute of Chemical Engineers xxx: xxx–xxx.

Yani, M., P. R. Nurcahyani and M. Rahayuningsih. 2014. *Penghilangan Bau Amonia Menggunakan Teknik Biofilter Dengan Bahan Pengisi Koral dan Arang Aktif Yang Diinokulasi Dengan Bakteri Pengoksidasi Amonia*. J Tek Ind Pert. 23 (1): 22-29.

Yetri, Y., Emriadi, N. Jamarun., and Gunawarman. 2014. *Corrosion Inhibition Efficiency of Mild Steel in Hydrochloric Acid by Adding Theobroma Cacao Peel Extract*. Journal of Chemical and Environmental Sciences (BCES-2014). 14-15.

Yetri, Y., Emriadi, N. Jamarun., and Gunawarman. 2017. *Theobroma Cacao Extract Peels (Tcpe) Green Inhibitor To Recovery The Mechanical Properties Of Mild Steel After Corrosion*. Journal of Engineering and Applied Science.

Yetri, Y., S. Pesona., M. F. Alif., and R. Zein. 2017. *Theobroma Cacao Peels Activated Carbon As Potential Adsorbent For Tartrazine*. Padang : Universitas Andalas.

Zahrim, A.Y., Z. D. Dexter., C. G. Joseph., and N. Hilal. 2017. *Effective coagulation-flocculation treatment of highly polluted palm oil mill biogas plant wastewater using dual coagulants: Decolourisation, kinetics and phytotoxicity studies*. Journal of Water Process Engineering 16: 258–269.

Zein, R., Mukhlis, N. Swesti., L. Novita., E. Novrian., S. Ningsih., and Syukri. 2016. *Peat Water Treatment by Using Multi Soil Layering (MSL) Method*. Der Pharma Chemica, 8(12): 254-261.

Zein, R., N. Wardana., and H. Aziz. 2018. *Kulit Salak sebagai Biosorben Potensial untuk Pengolahan Timbal(II) dan Cadmium(II) dalam Larutan*. Chimica et Natura Acta p-ISSN: 2355-0864 e-ISSN: 2541-2574.

Zein, R., Zilfa, S. Ningsih., L. Novita., N. Swesty., Mukhlis, and H. Novrian. 2016. *Treatment of waste water noodle industry with a multi soil layering (MSL) system*. Res. J. Pham. Biol. Chem., 7(6): 88-94.

Zhang, J. W., F. Z. Bi., Q. J. Wang., W. L. Wang., B. Liu., S. Lutts., W. Wei., Y. P. Zhao., G. X. Wang., and R. M. Han. xxxx. *Characteristics and influencing factors of cadmium biosorption by the stem powder of the invasive plant species Solidago canadensis*. Ecological Engineering xxx : xxx–xxx.