

## REFERENCES

- Afroze, S., Sen, T.K., Ang, M., and Nishioka, H., 2016, Adsorption of methylene blue dye from aqueous solution by novel biomass Eucalyptus sheathiana bark: equilibrium, kinetics, thermodynamics and mechanism, *Desalin. Water Treat.*, 57, 5858–5878.
- Alderman, D.J., 1985, Malachite green: a review, *J. Fish Dis.*, 8, 289–298.
- Almeida, F.T.R. de, Elias, M.M.C., Xavier, A.L.P., Ferreira, G.M.D., Silva, I.A., Filgueiras, J.G., Azevedo, E.R. de, Silva, L.H.M. da, Gil, L.F., and Gurgel, L.V.A., 2019, Synthesis and application of sugarcane bagasse cellulose mixed esters. Part II: Removal of  $\text{Co}^{2+}$  and  $\text{Ni}^{2+}$  from single spiked aqueous solutions in batch and continuous mode, *J. Colloid. Interf. Sci.*, 552, 337–350.
- Anonym, 2017, Malachite green and related chemicals: Human healthtier II assessment, Report, IMAP Group, New South Wales.
- Anonym, 2016, Malachite green in food, *J. EFSA*, 14, 7:4530, 1-80.
- Anonym, 2020, Produksi tanaman buah-buahan 2020, Report, Badan Pusat Statistik, Jakarta.
- Ariani, D., Aprilita, N.H., and Kuncaka, A., 2018, Adsorption of malachite green and methyl violet 2B with phthalate-functionalized sugarcane bagasse, *BIMIPA*, 25, 66–79.
- Asadujjaman, M., and Hossain, M.A., 2016, Fish growth, yield and economics of conventional feed and weed-based polyculture in ponds, *J. Fish.*, 4, 353–360.
- Ashok, V., Agrawal, N., Durgbanshi, A., Esteve-Romero, J., and Bose, D., 2014, Determination of adulteration of malachite green in green pea and some prepared foodstuffs by micellar liquid chromatography, *J. AOAC Int.*, 97, 1387–1392.
- Ayawei, N., Ebelegi, A.N., and Wankasi, D., 2017, Modelling and interpretation of adsorption isotherms, *J. Chem.*, 2017, 1–11.
- Chieng, H.I., Lim, L.B.L., and Priyantha, N., 2015, Enhancing adsorption capacity of toxic malachite green dye through chemically modified breadnut peel: Equilibrium, thermodynamics, kinetics and regeneration studies, *Environ. Technol.*, 36, 86–97.
- Chowdhury, S., Chakraborty, S., and Saha, P., 2011, Biosorption of Basic Green 4 from aqueous solution by *Ananas comosus* (pineapple) leaf powder, *Colloids Surf. B Biointerfaces*, 84, 520–527.
- Dahunsi, S.O., Ogunwale, J.O., Owoseni, A.A., Olutona, G.O., Nejo, Y.T., and Atobatele, O.E., 2022, Valorization of pineapple peel and poultry manure for clean energy generation, *Food Energy Secur.*, 11, e228.

- Faria, L.U.S., Pacheco, B.J.S., Oliveira, G.C., and Silva, J.L., 2020, Production of cellulose nanocrystals from pineapple crown fibers through alkaline pretreatment and acid hydrolysis under different conditions, *J. Mater. Res. Technol.*, 9, 12346–12353.
- Fegousse, A., Gaidoumi, A. el, Miyah, Y., Mountassir, R. el, and Lahrichi, A., 2019, Pineapple bark performance in dyes adsorption: Optimization by the central composite design, *J. Chem.*, 2019, 1–11.
- Gache, S.A.M., Angelini, A.A.R., Sabeckis, M.L., and Flecha, F.L.G., 2020, Improving the stability of the malachite green method for the determination of phosphate using Pluronic F68, *Anal. Biochem.*, 597, 113681.
- Gessner, T., and Mayer, U., 2000, Triarylmethane and Diarylmethane Dyes,. In *Ullmann's Encyclopedia of Industrial Chemistry*. Wiley-VCH Online, Weinheim, pp. 425–478.
- Gopinathan, R., Kanhere, J., and Banerjee, J., 2015, Effect of malachite green toxicity on non-target soil organisms, *Chemosphere*, 120, 637–644.
- Gupta, S., Selvan, H., Markan, A., and Gupta, V., 2018, Holi colors and chemical contact keratitis, *Eye*, 32, 1–3.
- Ho, M.C., Ong, V.Z., and Wu, T.Y., 2019, Potential use of alkaline hydrogen peroxide in lignocellulosic biomass pretreatment and valorization – A review, *Renew. Sust. Energ. Rev.*, 112, 75–86.
- Hokkanen, S., Bhatnagar, A., and Sillanpää, M., 2016, A review on modification methods to cellulose-based adsorbents to improve adsorption capacity, *Water Res.*, 91, 156–173.
- Hu, X., Zhao, M., Song, G., and Huang, H., 2011, Modification of pineapple peel fibre with succinic anhydride for Cu<sup>2+</sup>, Cd<sup>2+</sup> and Pb<sup>2+</sup> removal from aqueous solutions, *Environ. Technol.*, 32, 739–746.
- Ibrahim, E.S., Moustafa, H., El-Molla, S.A., Halim, S.A., and Ibrahim, S.M., 2021, Integrated experimental and theoretical insights for malachite green dye adsorption from wastewater using low-cost adsorbent, *Water Sci. Technol.*, 84, 3833–3858.
- Katahira, R., Elder, T.J., and Beckham, G.T., 2018, A brief introduction to lignin structure,. In *Lignin Valorization: Emerging Approaches*. Royal Society of Chemistry, Washington DC, 1–20.
- Katheresan, V., Kansedo, J., and Lau, S.Y., 2018, Efficiency of various recent wastewater dye removal methods: A review, *J. Environ. Chem. Eng.*, 6, 4676–4697.
- Khandelwal, A., Narayanan, N., Varghese, E., and Gupta, S., 2020, Linear and nonlinear isotherm models and error analysis for the sorption of kresoxim-methyl in agricultural soils of India, *Bull. Environ. Contam. Toxicol.*, 104, 503–510.

- Khazraji, A.C., and Robert, S., 2013, Interaction effects between cellulose and water in nanocrystalline and amorphous regions: A novel approach using molecular modeling, *J. Nanomater.*, 2013, 1–10.
- Krishni, R.R., Foo, K.Y., and Hameed, B.H., 2014, Food cannery effluent, pineapple peel as an effective, low-cost biosorbent for removing cationic dye from aqueous solutions, *Desalin. Water Treat.*, 52, 6096–6103.
- Kyzas, G.Z., and Kostoglou, M., 2014, Green adsorbents for wastewaters: A critical review, *Materials*, 7, 333–364.
- Madureira, A.R., Atatoprak, T., Çabuk, D., Sousa, F., Pullar, R.C., and Pintado, M., 2018, Extraction and characterisation of cellulose nanocrystals from pineapple peel, *Int. J. Food Stud.*, 7, 24–33.
- Medronho, B., and Lindman, B., 2015, Brief overview on cellulose dissolution/regeneration interactions and mechanisms, *Adv. Colloid Interface Sci.*, 222, 502–508.
- Nasrullah, A., Bhat, A.H., Sada Khan, A., and Ajab, H., 2017, Comprehensive approach on the structure, production, processing, and application of lignin., In, *Lignocellulosic Fibre and Biomass-Based Composite Materials: Processing, Properties and Applications*. Woodhead Publishing, Cambridge, 165–178.
- Neupane, S., Ramesh, S.T., Gandhimathi, R., and Nidheesh, P.V., 2014, Pineapple leaf (*Ananas comosus*) powder as a biosorbent for the removal of crystal violet from aqueous solution, *Desalin. Water Treat.*, 54, 2041–2054.
- Olivera, S., Muralidhara, H.B., Venkatesh, K., Guna, V.K., Gopalakrishna, K., and Kumar K., Y., 2016, Potential applications of cellulose and chitosan nanoparticles/composites in wastewater treatment: A review, *Carb. Polym.*, 153, 600–618.
- Ong, S.T., Keng, P.S., Ooi, S.T., Hung, Y.T., and Lee, S.L., 2012, Utilization of fruits peel as a sorbent for removal of methylene blue, *Asian J. Chem.*, 24, 398–402.
- Pardo, M.E.S., Cassellis, M.E.R., Escobedo, R.M., and García, E.J., 2014, Chemical characterisation of the industrial residues of the pineapple (*Ananas comosus*), *J. Agric. Chem. Environ.*, 03, 53–56.
- Peng, W., Ding, F., Peng, Y.K., and Sun, Y., 2014, Molecular recognition of malachite green by hemoglobin and their specific interactions: Insights from in silico docking and molecular spectroscopy, *Mol. BioSys.*, 10, 138–148.
- Peng, X., Nie, S., Li, X., Huang, X., and Li, Q., 2019, Characteristics of the water- and alkali-soluble hemicelluloses fractionated by sequential acidification and graded-ethanol from sweet maize stems, *Molecules*, 24, .
- Pereira, P.H.F., Ornaghi, H.L., Oliveira, D.M. de, Pereira, B., Arantes, V., and Cioffi, M.O.H., 2022, Effect of chemical treatment sequence on pineapple

peel fiber: Chemical composition, thermal stability and thermal degradation kinetics, Res. Sq., 1–22.

- Piaskowski, K., Świdarska-Dąbrowska, R., and Zarzycki, P.K., 2018, Dye removal from water and wastewater using various physical, chemical, and biological processes, J. AOAC Int., 101, 1371–1384.
- Popoola, L.T., 2019, Characterization and adsorptive behaviour of snail shell-rice husk (SS-RH) calcined particles (CPs) towards cationic dye, Heliyon, 5, 1153.
- Radzi, A.M., Zuber, S.Z.H.S., Zainudin, N.F., Halim, N.A.A., and Abdullah, R., 2019, Removal of malachite green from aqueous solution by using pineapple peel. In, AIP Conference Proceedings., American Institute of Physics Inc., Bandung, 29-30 April, 2129, 020048
- Ramírez, C.A., Londoño, Á.M.P., and Zapata, R.B., 2018, Cáscara de piña como adsorbente de colorantes típicos de la industria textil, Cienc Desarro, 9, 161–168.
- Ramos, S.N. do C., Xavier, A.L.P., Teodoro, F.S., Elias, M.M.C., Gonçalves, F.J., Gil, L.F., Freitas, R.P., and Gurgel, L.V.A., 2015, Modeling mono- and multi-component adsorption of cobalt(II), copper(II), and nickel(II) metal ions from aqueous solution onto a new carboxylated sugarcane bagasse. Part I: Batch adsorption study, Ind. Crops Prod., 74, 357–371.
- Rápó, E., and Tonk, S., 2021, Factors affecting synthetic dye adsorption; desorption studies: A review of results from the last five years (2017–2021), Molecules, 26, 1–31.
- Reeder, B.C., 2017, Primary productivity limitations in relatively low alkalinity, high phosphorus, oligotrophic Kentucky reservoirs, Ecol. Eng., 108, 477–481.
- Salve, R.R., and Ray, S., 2020, Comprehensive study of different extraction methods of extracting bioactive compounds from pineapple waste: A Review, J. Pharm. Innov., 9, 327–340.
- Sellaoui, L., Franco, D., Ghalla, H., Georgin, J., Netto, M.S., Luiz Dotto, G., Bonilla-Petriciolet, A., Belmabrouk, H., and Bajahzar, A., 2020, Insights of the adsorption mechanism of methylene blue on Brazilian berries seeds: Experiments, phenomenological modelling and DFT calculations, J. Chem. Eng., 394, 125011.
- Shrotri, A., Kobayashi, H., and Fukuoka, A., 2017, Catalytic conversion of structural carbohydrates and lignin to chemicals, Adv. Catal., 60, 59–123.
- Sinha, R., and Jindal, R., 2020, Elucidation of malachite green induced behavioural, biochemical, and histo-architectural defects in Cyprinus carpio, as piscine model, Environ. Sustain. Indic., 8, 100055.
- Srivastava, S., Sinha, R., and Roy, D., 2004, Toxicological effects of malachite green, Aquatic Toxicology, 66, 319–329.

- Su, Y., Du, R., Guo, H., Cao, M., Wu, Q., Su, R., Qi, W., and He, Z., 2015, Fractional pretreatment of lignocellulose by alkaline hydrogen peroxide: Characterization of its major components, *Food Bioprod. Process.*, 94, 322–330.
- Subramanyam, B., and Das, A., 2014, Linearised and non-linearised isotherm models optimization analysis by error functions and statistical means, *J. Environ. Health Sci. Eng.*, 12, 1–6.
- Susarla, S.M., Mulliken, J.B., Kaban, L.B., Manson, P.N., and Dodson, T.B., 2017, The colourful history of malachite green: from ancient Egypt to modern surgery, *Int. J. Oral Maxillofac. Surg.*, 46, 401–403.
- Teodoro, F.S., Ramos, S.N. do C., Elias, M.M.C., Mageste, A.B., Ferreira, G.M.D., Silva, L.H.M., Gil, L.F., and Gurgel, L.V.A., 2016, Synthesis and application of a new carboxylated cellulose derivative. Part I: Removal of  $\text{Co}^{2+}$ ,  $\text{Cu}^{2+}$  and  $\text{Ni}^{2+}$  from monocomponent spiked aqueous solution, *J. Colloid Interface Sci.*, 483, 185–200.
- Varghese, A.G., Paul, S.A., and Latha, M.S., 2018, Remediation of heavy metals and dyes from wastewater using cellulose-based adsorbents, *Environ. Chem. Lett.*, 17, 867–877.
- Ventura-Cruz, S., Flores-Alamo, N., and Tecante, A., 2020, Preparation of microcrystalline cellulose from residual Rose stems (*Rosa* spp.) by successive delignification with alkaline hydrogen peroxide, *Int. J. Bio. Macromol.*, 155, 324–329.
- Verdon, E., and Andersen, W.C., 2017, Certain dyes as pharmacologically active substances in fish farming and other aquaculture products, *FDA Papers*, 13, 497–548.
- Wang, H., Yuan, X., Zeng, G., Leng, L., Peng, X., Liao, K., Peng, L., and Xiao, Z., 2014, Removal of malachite green dye from wastewater by different organic acid-modified natural adsorbent: kinetics, equilibriums, mechanisms, practical application, and disposal of dye-loaded adsorbent, *Environ. Sci. Poll. Res.*, 21, 11552–11564.
- Wang, J., and Guo, X., 2020, Adsorption kinetic models: Physical meanings, applications, and solving methods, *J. Hazard. Mater.*, 390, 1–18.
- Xing, X., Qu, H., Shao, R., Wang, Q., and Xie, H., 2017, Mechanism and kinetics of dye desorption from dye-loaded carbon (XC-72) with alcohol-water system as desorbent, *Water Sci. Technol.*, 76, 1243–1250.
- Yagub, M.T., Sen, T.K., Afroze, S., and Ang, H.M., 2014, Dye and its removal from aqueous solution by adsorption: A review, *Adv. Colloid Interface Sci.*, 209, 172–184.
- Zhou, X., Zhang, J., Pan, Z., and Li, D., 2019, Review of methods for the detection and determination of malachite green and leuco-malachite green in aquaculture, *Crit. Rev. Anal. Chem.*, 49, 1–20.

Zhou, Y., Zhang, L., and Cheng, Z., 2015, Removal of organic pollutants from aqueous solution using agricultural wastes: A review, *J. Mol. Liq*, 212, 739–762.