

BAB V

KESIMPULAN DAN SARAN

V.1. Kesimpulan

1. Zeolit Y dengan bahan lignoselulosa abu sabut kelapa disintesis menggunakan metode hidrothermal berhasil dianalisa menggunakan XRD, XRF, FTIR, dan SEM.
2. Isoterm adsorpsi menggunakan model persamaan Langmuir dan Freundlich telah digunakan untuk mengkorelasikan data adsorpsi. Pada kinetika adsorpsi Rhodamin B dari Zeolit Y terhadap waktu menunjukkan bahwa hasil yang terbaik menggunakan persamaan pseudo orde satu yang menyatakan pori yang homogen pada partikel Zeolit Y.

V.2 Saran

Saran untuk penelitian berikutnya:

1. Proses adsorpsi terhadap zat warna lain oleh Zeolit Y perlu dipelajari lagi untuk mendapatkan kapasitas yang terbaik.

DAFTAR PUSTAKA

- [1] Kementerian Perindustrian Republik Indonesia, “Populasi Sektor IKTA Meningkat, Tahun 2017 Ditargetkan 753 Perusahaan,” Siaran Pers Kementerian Perindustrian Republik Indonesia, Jakarta, 2017.
- [2] Valdés, M.G. Pérez-Cordoves, A.I. dan Díaz-García, M.E., “Zeolits and Zeolit-Based Materials in Analytical Chemistry”, Trends in Analytical Chemistry, vol. 25, pp. 24-30, 2006.
- [3] Babel and T. Kurniawan, “Low-cost adsorbents for heavy metals uptake from contaminated water: a review,”Journal of Hazardous Materials, Vol 97, pp. 219-243, 2003
- [4] Y. Zhan, H. Zhang, J. Lin, Z. Zhang and J. Gao, “Role of zeolit’s exchangeable cations in phosphate adsorption on zirconium-modified zeolit,” Materials Chemistry and Physics. Vol. 202, pp. 266-276, 2017.
- [5] Badan Pusat Statistik, “Badan Pusat Statistik”. Available at: <http://www.bps.go.id>. (Accessed: 18 Maret 2020).
- [6] Rindengan, B., A. Lay, H. Novianto, H. Kembuan & Z. Mahmud, “Karakterisasi Daging Buah Kelapa dalam Usaha Tani Padi Pasang Surut”. Prosiding Konferensi Nasional Kelapa, Vol. 1, pp. 2, 1995
- [7] Wu L., Magusin P. C. M. M., Degirmenci V., Li M., Almutairi S.M.T., Zhu X., Mezari B., & Hensen E. J. M. “Acidic Properties of Nanolayered ZSM-5 Zeolites. Microporous and Mesoporous Materials”. Vol. 189, pp. 144–157, 2017.

- [8] Vineet Vaibhav, U Vijayalakshmi, and S Mohana Roopan, "Agricultural Waste as a Source for The Production of Silica Nanoparticles," *Spectrochimica Acta Part A: Molecular and Biomecular Spectroscopy*, Vol. 105, pp. 55, 2014
- [9] Adeyi, O., "Proximate composition of some agricultural wastes in Nigeria and their potential use in activated carbon production". *J. Appl. Sci. Environ. Manage.* Vol. 14, pp. 55- 58, 2010.
- [10] Muensri, P., Kunanopparat, T., Menut, P., Siri wattanayotin, S., "Effect of lignin removal on the properties of coconut coir fiber/wheat gluten biocomposite". *J. Composites: Part A.* Vol. 42, pp. 173-179, 2011.
- [11] Mulyawan, M., Setyowati, E., & Wijaya, A. "Surfaktan Sodium Ligno Sulfonat (SLS) dari Debu Sabut Kelapa". *Jurnal Teknik ITS*, Vol. 4, pp. 1-3, 2015.
- [12] Panella, B. Hirscher, M. dan Roth, S., "Hydrogen Adsorption in Different Carbon Nanostructures", *Carbon*, Vol. 43, pp. 2209-2214, 2005.
- [13] Smart, Lesley A. dan Moore, Elaine A., "Solid State Chemistry: An Introduction". *CRC Press-Taylor & Francis Group, Boca Raton.* Vol. 20, pp. 45-50, 2005.
- [14] Suci, F. C." Adsorpsi Hidrogen Pada Material Karbon Tertemplat Zeolit-Y Dengan Aktivasi Hydrogen Adsorption on Activated Zeolit-Y Templated Carbon". Vol. 50, pp. 13, 2015.

- [15] Smart, Lesley A. dan Moore, Elaine A., "Solid State Chemistry: An Introduction, First Edition", Chapman & Hall University and Profesional Division, London. Smart.Vol. 50, pp. 185-190, 1993.
- [16] Valdés, M.G. Pérez-Cordoves, A.I. dan Díaz-García, M.E., "Zeolites and Zeolite-Based Materials in Analytical Chemistry", Trends in Analytical Chemistry, Vol. 25, pp. 24-30, 2006.
- [17] Jumaeri, Sutarno, E. S. Kuniarti, & S. J. Santosa. P"engaruh Konsentrasi NaOH dan Temperatur pada Sintesis Zeolit dari Abu Layang Secara Alkali Hidrotermal". Jurnal Zeolit Indonesia. Vol 8, pp. 22-32, 2009.
- [18] Rini, Dian. And A. Fendy, "Optimasi Aktivasi Zeolit untuk Dehumidifikasi," Undip, Semarang, 2010
- [19] A. Kurniawan, H. Sutiono, Y. Ju, F. Soetaredjo, A. Ayucitra, A. Yudha and S. Ismadji, "Utilization of rarasaponin natural surfactant for organo-bentonite preparation: Appilcation for methylene blue removal from aqueous effluent," Microporous and Mesoporous Materials, Vol. 142, pp. 184-193, 2011.
- [20] H. Freundlich, "Of the adsorption of gases. Section II. Kinetics and energetics of gas adsorption. Introductory paper to section II," Transactions of the faraday Society, Vol. 28, pp. 195-201, 1932.
- [21] I. Langmuir, "The Constitution And Fundamental Properties of Solids and Liquids Part I Solids," Journal of The American Chemical Society, Vol. 38, pp. 2221-2295, 1916.

- [22] Chelsey Anderson, Nina Bass, and Amanda Clark, "Synthesis Of Silicalite-1 Aggregates," 2011.
- [23] Mohsen Mehdipourghazia, Ahmad Moheb, and Hossein Kazemian, "Incorporation of boron into nano-size MFI zeolite structure using a novel microwave-assisted two-stage varying temperatures hydrothermal synthesis," *Microporous and Mesoporous Materials*, pp. 18-24, 2010
- [24] Palanivel Velmurugan et al., "Extraction, characterization, and catalytic potential of amorphous silica from corn cobs by sol-gel method," *Journal of Industrial and Engineering Chemistry*, Vol. 5. pp. 6, 2015.
- [25] Mahwish Saleem, Masooma Rustam, Hassan Javed Naqvi, Sidra Jabeen, and Amna Akhtar, "Synthesis Of Precipitated Silica From Corn Cobs By Using Organic Acids," *Sci.Int.*, pp. 265-269, 2014.
- [26] Ismail AA, Mohamed RM, Fouad OA, Ibrahim IA. "Synthesis of nanosized ZSM-5 using different alumina source". *Cryst Res Technol* 41 (2): 145 – 149, 2006.
- [27] Breck DW. "Zeolite Molecular Sieves London": Wiley, 1974.
- [28] Chelsey Anderson, Nina Bass, and Amanda Clark, "Synthesis Of Silicalite-1 Aggregates," 2011.
- [29] Adamson, "Physical Chemistry Of Surface 5th ed", New York: John Willey & Sons, Vol. 20, pp.120-125, 1990.

- [30] Cheng, Z.S. Chao, H.L. Wan, "Synthesis of compact NaA zeolite membrane by microwave heating method", *Chin. Chem. Lett.* Vol. 14, pp.874–876, 2003
- [31] Weh, M. Noack, I. Sieber, J. Caro, "Permeation of single gases and gas mixtures through faujasite-type molecular sieve membranes", *Microporous Mesoporous Mater.* Vol. 54, pp. 27–36, 2002
- [32] Hartanto,D. Saputro,O. Utomo,W.P., Rosyidah,A. Sugiarso,D. Ersam,T. Nur,H. and Prasetyoko,D. "Synthesis of ZSM-5 Directly from Kaolin without Organic Template Part-1: Effect of Crystallization Time," *Asian Journal Of Chemistr.* Vol, 28. pp. 211-215, 2016.
- [33] Julbe, J. Motuzas, F. Cazevielle, G. Volle, C. Guizard, "Synthesis of sodalite/ α Al_2O_3 composite membranes by microwave heating", *Sep. Purif. Technol.* Vol. 32, pp. 139–149, 2003.