

## DAFTAR PUSTAKA

- Aggarwal, N., Vasishth, A., Singh, B., and Singh, B., 2018, Investigation of Room Temperature Ferromagnetic Behaviour in Dilute Magnetic Oxides, *Integr. Ferroelect.*, 186, 10–16.
- Anugrah, D.S.B., Darmalim, L.V., Polanen, M.R.I., Putro, P.A., Sasongko, N.A., Siahaan, P., and Ramadhan, Z.R., 2022, Quantum Chemical Calculation for Intermolecular Interactions of Alginate Dimer-Water Molecules, *Gels*, 8, 1–15.
- Atikoh, W.S., 2017, Potensi Zeolit Alam Gunung Kidul Teraktivasi sebagai Media Adsorben Pewarna Tekstil, *Arena Tekstil*, 1, 17–24.
- Bandyopadhyay, S., Ghosh, K., and Varadachari, C., 2014, Multimicronutrient Slow-release Fertilizer of Zinc, Iron, Manganese, and Copper, *Int. J. Chem. Eng.*, 2014, 1–7.
- Betriani, R., Sutarno, S., Kartini, I., and Budiarta, J., 2023, Synthesis of Zeolite/NPK Coated with Cu-Alginate-PVA-Glutaraldehyde as a Slow-Release Fertilizer, *Indones. J. Chem.*, 23, 184–199.
- Cabot, C., Martos, S., Llugany, M., Gallego, B., Tolrà, R., and Poschenrieder, C., 2019, A Role for Zinc in Plant Defense Against Pathogens and Herbivores, *Front. Plant. Sci.*, 10, 1–15.
- Dharmayanti, N., Mufida, N., Permadi, A., Bokhy S. R., Zachro Nurbani, S., dan Indriati, N., 2021, Penambahan Konsentrasi Alginat dari Sargassum polycystum untuk Formulasi Krim Lulur, *Jurnal Akuatek*, 2, 81–94.
- Dobermann, A., Bruulsema, T., Cakmak, I., Gerard, B., Majumdar, K., McLaughlin, M., Reidsma, P., Vanlauwe, B., Wollenberg, L., Zhang, F., and Zhang, X., 2022, Responsible Plant Nutrition: A New Paradigm to Support Food System Transformation, *Blob. Food Sec.*, 33, 1–13.
- Fauziah, F., Wulansari, R., Erdiansyah, D., Pusat, R., Teh, P., dan Kina, D., 2018, Pengaruh Pemberian Pupuk Mikro Zn dan Cu serta Pupuk Tanah terhadap Perkembangan *Empoasca* sp. pada Areal Tanaman Teh, *Jurnal Agrikultura*, 29, 26–34.
- García-López, J.I., Niño-Medina, G., Olivares-Sáenz, E., Lira-Saldivar, R.H., Barriga-Castro, E.D., Vázquez-Alvarado, R., Rodríguez-Salinas, P.A., and Zavala-García, F., 2019, Foliar Application of Zinc Oxide Nanoparticles and Zinc Sulfate Boosts the Content of Bioactive Compounds in Habanero Peppers, *Plants*, 8, 1–20.

- Gates, B.C., 1992, *Catalytic Chemistry*, John Wiley and Sons Inc., Singapore.
- Gibson, L.J. and Ashby, M.F., 1997, *Cellular Solids: Structure and Properties*, 2nd ed. Cambridge University Press, Cambridge.
- Hernowo, A. dan Nurhasanah, L., 2019, Kristalinitas dan Ukuran Nanopartikel ZnO yang Dikalsinasi pada Temperatur 100 dan 200 °C, *Berkala Fisika*, 22, 125–131.
- Iskandar F. R., Tarkono, dan Sugiyanto, 2013, Studi Sifat Mekanik Komposit Serat Sansevieria Cylindrica dengan Variasi Fraksi Volume Bermatrik Polyester, *Jurnal Ilmiah Teknik Mesin*, 1, 85–93.
- Jamnongan, T. and Kaewpirom, S., 2010, Controlled-Release Fertilizer Based on Chitosan Hydrogel: Phosphorus Release Kinetics, *Science Journal Ubon Ratchathani University.*, 1, 43–50.
- Jayanudin, J., dan Lestari, R.S.D., 2020, Enkapsulasi dan Karakterisasi Pelepasan Terkendali Pupuk NPK menggunakan Kitosan yang Ditaut Silang dengan Glutaraldehida, *Jurnal Pendidikan Kimia*, 1(16), 110-125.
- Kumar, K.V., 2006, Linear and Non-linear Regression Analysis for the Sorption Kinetics of Methylene Blue onto Activated Carbon, *J. Hazard. Mater.*, 137, 1538–1544.
- Kurniawan, M.A., Wahyuningrum, I.R., dan Anggraini, D., 2021, Sintesis dan Karakterisasi Komposit Alginat/Zeolit/Fe-Zn Sebagai Salah Satu Material Pupuk Penyimpan Fe dan Zn, *Indonesian Journal of Chemical Research*, 3, 31–37.
- Lee, K.Y. and Mooney, D.J., 2012, Alginate: Properties and Biomedical Applications, *Prog. Polym. Sci.*, 37, 106–126.
- Lestari, D., 2010, Kajian Modifikasi dan Karakterisasi Zeolit Alam dari Berbagai Negara, *Jurnal Kimia UNY*, 1–6.
- Louzidou, M.D., 1990, *Heavy Metal Removal Using Natural Zeolite*, 2nd ed. International Symposium on Metals Speciation, Separation, and Recovery.
- Margeta, K., Logar, N.Z., Iljeg, M., and Farka, A., 2013, Natural Zeolites in Water Treatment – How Effective is Their Use, *Water treatment*, 81–112.
- Navas, D., Ibañez, A., González, I., Palma, J.L., and Dreyse, P., 2020, Controlled Dispersion of ZnO Nanoparticles Produced by Basic Precipitation in Solvothermal Processes, *Heliyon*, 6, 1–9.

- Norrman, K.-E., 2023, *World Population Growth: A Once and Future Global Concern, World*, 4, 684–697.
- Novia Y. R., Hambali, E., Pari, G., dan Suryani, A., 2021, Analisis Karakteristik Fungsi Zeolit Alam Aktif sebagai Katalis Setelah Diimpregnasi Logam Nikel, *Jurnal Penelitian Hasil Hutan*, 39, 138–147.
- Paşcalău, V., Popescu, V., Popescu, G.L., Dudescu, M.C., Borodi, G., Dinescu, A., Perhaița, I., and Paul, M., 2012, The Alginate/k-carrageenan Ratio's Influence on the Properties of the Cross-linked Composite Films, *J. Alloys Compd.*, 536, S418–S423.
- Pinpru, N. and Woramongkolchai, S., 2020, Crosslinking Effects on Alginate/carboxymethyl Cellulose Packaging Film Properties, *Chiang Mai J. Sci.*, 47, 712–722.
- Prakoso, T., Alpandari, H., Hendro, H., dan Sridjono, H., 2022, Respon Pemberian Unsur Hara Makro Essensial terhadap Pertumbuhan Tanaman Jagung (*Zea Mays*), *MJ-Agroteknologi*, 1, 8–13.
- Pratomo, K.R., Suwardi, S., and Darmawan, D., 2009, The Influence of Slow Release Fertilizer Urea-zeolite-humic Acid (Uza) to Paddys Productivity Variety Cihorang, *Jurnal Zeolit Indonesia*, 8, 83–88.
- Putri, E.N.K., Febrianastuti, S., Maylinda, E.V., Fadillah, G., dan Purnawan, C., 2018, Efek Komposisi Bioadsorben  $\alpha$ -Keratin/Alginat terhadap Kapasitas Adsorpsi Logam Berat Besi (Fe), *J. Pen. Kim.*, 14, 323–332.
- Rahma, S., 2014, Kinetika Lepas Lambat Fe(III) DAN Zn(II) dari Komposit Alginat/Zeolit/Fe(III)/Zn(II), *Tesis*, Fakultas Matematika dan Ilmu Pengetahuan Alam Universitas Gadjah Mada, Yogyakarta.
- Rashidzadeh, A., Olad, A., Salari, D., and Reyhanitabar, A., 2014, On The Preparation and Swelling Properties of Hydrogel Nanocomposite Based on Sodium Alginate-g-Poly (Acrylic Acid-co-acrylamide)/Clinoptilolite and Its Application as Slow Release Fertilizer, *J. Polym. Res.*, 21, 1–15.
- Ridlo, A., Sedjati, S., Supriyantini, E., dan Zanjabila, D.A., 2023, Pengembangan dan Karakterisasi Bioplastik Karagenan-Alginat-Gliserol dengan Perlakuan Kalsium Klorida, *Buloma*, 12, 43–53.
- Rios, C., William, C., and Fullen, M., 2009, Nucleation and Growth History of Zeolite LTA Synthesized from Kaolinite by Two Different Methods, *Appl. Clay Sci.*, 42, 446–454.

- Rizwan, M., Gilani, S.R., Durrani, A.I., and Naseem, S., 2022, Kinetic Model Studies of Controlled Nutrient Release and Swelling Behavior of Combo Hydrogel Using Acer Platanoides Cellulose, *J. Taiwan Inst. Chem. Eng.*, 131, 104137.
- Sahoo, D., Sahoo, S., Mohanty, P., Sasmal, S., and Nayak, P.L., 2009, Chitosan: a New Versatile Bio-polymer for Various Applications, *Des. Monomers Polym.*, 12, 377–404.
- Sari, R.N., Nurhasni, N., and Yaqin, M.A., 2017, Green Synthesis Nanoparticle ZnO Sargassum sp. Extract and The Products Characteristic, *JPHPI*, 20, 238–254.
- Sharma, A., Patni, B., Shankhdhar, D., and Shankhdhar, S.C., 2013, Zinc - An Indispensable Micronutrient, *Physiol. Mol. Biol. Plants*, 19, 11–20.
- Shelvia D. S., Widhi M. F., dan Nuni, W., 2018, Sintesis dan Karakterisasi Zeolit dari Abu Sekam Padi menggunakan Metode Hidrotermal, *J. Chem. Sci*, 7, 58.
- Suci, I.A. dan Astar, I., 2022, Enkapsulasi Urea menggunakan Biokomposit Zeolit Alam Alginat-Pati Sagu sebagai Model Pupuk Lepas Lambat (Slow Release Fertilizer), *Al-Kimia*, 10, 1–11.
- Sukma, N.S., 2014 Karakterisasi dan Kajian Pelepasan Besi(III) dari Komposit Alginat/Zeolit/Fe, *tesis*, Fakultas Matematika dan Ilmu Pengetahuan Alam Universitas Gadjah Mada, Yogyakarta.
- Sundarrajan, P., Eswaran, P., Marimuthu, A., Subhadra, L.B., and Kannaiyan, P., 2012, One Pot Synthesis and Characterization of Alginate Stabilized Semiconductor Nanoparticles, *B. Korean Chem. Soc.*, 33, 3218–3224.
- Umar, W., Czinkota, I., Gulyás, M., Aziz, T., and Hameed, M.K., 2022, Development and Characterization of Slow Release N and Zn Fertilizer by Coating Urea with Zn Fortified Nano-Bentonite and ZnO NPs Using Various Binders, *Environ. Technol. Innov.*, 26, 1–15.
- Yeom, Y.H., Kim, Y., Song, S.H., and Seff, K., 1997, Crystal Structure of an Ethylene Sorption Complex of Cd 2+-Exchanged Zeolite X, Cd 46 Si 100 Al 92 O 384.29.5C2H4, *J. Phys. Chem. B.*, 101, 2138–2142.
- Yuvaraj, M., Subramanian, K.S., and Cyriac, J., 2023, Efficiency of Zinc Oxide Nanoparticles as Controlled Release Nanofertilizer for Rice (*Oryza Sativa L*), *J. Plant Nutr.*, 46, 4477–4493.
- Zaafarany, I.A., 2010, Non-Isothermal Decomposition of Al, Cr and Fe Cross-Linked Trivalent Metal-Alginate Complexes, *JKAU: Sci*, 22, 193–202.