DAFTAR PUSTAKA

Abdul Jabbar, H., Shafai, S. N. D., & Ab Kadir, M. I. (2022). Eco – colourants and Collage: Exploring natural colours extracted from ketapang leaves. *Environment-Behaviour Proceedings Journal*, *7*(SI9), 389–394. https://doi.org/10.21834/ebpj.v7isi9.3947

An, L., Hu, X., Perkins, P., & Ren, T. (2022). A Sustainable and Antimicrobial Food Packaging Film for Potential Application in Fresh Produce Packaging. *Frontiers in Nutrition*, *9*(July), 1–10. https://doi.org/10.3389/fnut.2022.924304

Arina. (2025). Pemanfaatan, Daun Ketapang, Daun Jambu Biji dan Daun Jarak Sebagai Pewarna Alami Pada Pembuatan Ecoprint Teknik Iron Blanket). *BAJU: Journal of Fashion and Textile Design Unesa*, *6*(1), 30–36. https://doi.org/10.26740/baju.v6n1.p30-36

Arrieta, M. P., Samper, M. D., Lopez, J., & Jimenez, A. (2014). Combined Effect of Poly (hydroxybutyrate) and Plasticizers on Polylactic acid Properties for Film Intended for Food Packaging. *J Polym Envirom*. https://doi.org/10.1007/s10924-014-0654-y

Azizah, A. A., & Khuzaimah, S. (2022). Ekstraksi Zat Warna Alami Daun Ketapang (Terminalia Catappa) Untuk Pewarna Sabun Padat Berbahan Dasar Minyak Jelantah. *Jurnal Inovasi Daerah*, *1*(2), 135–142.

Azmir, J., Zaidul, I. S. M., Rahman, M. M., Sharif, K. M., Mohamed, A., Sahena, F., Jahurul, M. H. A., Ghafoor, K., Norulaini, N. A. N., & Omar, A. K. M. (2013). Techniques for extraction of bioactive compounds from plant materials: A review. *Journal of Food Engineering*, *117*(4), 426–436. https://doi.org/10.1016/j.jfoodeng.2013.01.014

Bahsaine, K., El Allaoui, B., Benzeid, H., El Achaby, M., Zari, N., Qaiss, A. el K., & Bouhfid, R. (2023). Hemp cellulose nanocrystals for functional chitosan/polyvinyl alcohol-based films for food packaging applications. *RSC Advances*, *13*(47), 33294–33304. https://doi.org/10.1039/D3RA06586C

Berbers, S. V. J., Tamburini, D., van Bommel, M. R., & Dyer, J. (2019). Historical formulations of lake pigments and dyes derived from lac: A study of compositional variability. *Dyes and Pigments*, *170*, 107579. https://doi.org/10.1016/j.dyepig.2019.107579

Borges, M. E., Tejera, R. L., Díaz, L., Esparza, P., & Ibáñez, E. (2012). Natural dyes extraction from cochineal (Dactylopius coccus). New extraction methods. *Food Chemistry*, *132*(4), 1855–1860. https://doi.org/10.1016/j.foodchem.2011.12.018

Chakraborty, S., & Chatterjee, P. (2013). Selection of materials using multi-criteria decision-making methods with minimum data. *Decision Science Letters*, *2*(3), 135–148. https://doi.org/10.5267/j.dsl.2013.03.005

Chandrasekhar, Y., Ramya, E. M., Navya, K., Phani Kumar, G., & Anilakumar, K. R. (2017). Antidepressant like effects of hydrolysable tannins of Terminalia catappa leaf extract via modulation of hippocampal plasticity and regulation of monoamine neurotransmitters subjected to chronic mild stress (CMS). *Biomedicine and Pharmacotherapy*, *86*(2017), 414–425. https://doi.org/10.1016/j.biopha.2016.12.031

Chen, G.-Q., & Patel, M. K. (2012). Plastics Derived from Biological Sources: Present and Future: A Technical and Environmental Review. *Chemical Reviews*, *112*(4), 2082–2099. https://doi.org/10.1021/cr200162d

Chiellini, E., Corti, A., D'Antone, S., & Solaro, R. (2003). Biodegradation of poly (vinyl alcohol) based materials. *Progress in Polymer Science*, *28*(6), 963–1014. https://doi.org/10.1016/S0079-6700(02)00149-1

Cortés-Rojas, D. F., Souza, C. R. F., & Oliveira, W. P. (2015). Optimization of spray drying conditions for production of Bidens pilosa L. dried extract. *Chemical Engineering Research and Design*, *93*, 366–376. https://doi.org/10.1016/J.CHERD.2014.06.010

Delica, K. M., Balagot, K. W. M., Ramos, R. E., Lapuz, R. B., Collera, J. A., & Martinez, C. M. J. (2024). Phytochemical Screening, Antioxidant, and Antimicrobial Properties of Sequential Extracts of Stems of Arcangelisia flava. *MALAYSIAN JOURNAL OF CHEMISTRY*, *26*(1), 96–104. https://doi.org/10.55373/mjchem.v26i1.96

Dressler, H. (1994). The Properties and Chemistry of Resorcinol. In *Resorcinol* (Issue 2876, pp. 5–25). Springer US. https://doi.org/10.1007/978-1-4899-0999-2_2

Dzah, C. S., Duan, Y., Zhang, H., Wen, C., Zhang, J., Chen, G., & Ma, H. (2020). The effects of ultrasound assisted extraction on yield, antioxidant, anticancer and antimicrobial activity of polyphenol extracts: A review. *Food Bioscience*, *35*, 100547. https://doi.org/10.1016/J.FBIO.2020.100547

Elapasery, M., Hussein, A., Saleh, M., Eladasy, A., & Nour El-Din, N. (2021). Microwave-assisted dyeing of wool fabrics with natural dyes as eco- friendly dyeing method: part I. Dyeing performance and fastness properties. *Egyptian Journal of Chemistry*, *64*(7), 0–0. https://doi.org/10.21608/ejchem.2021.72134.3588

Fajraoui, A., Ben Nasr, J., Lacoste, C., Amar, M. Ben, Dony, P., Odof, S., & El Halouani, F. (2019). Coloration of the polylactic acid with the natural dye extracted from acacia cyanophylla flowers. *Polymer Testing*, *78*(July), 105988. https://doi.org/10.1016/j.polymertesting.2019.105988

Feldman, D. (2008). Polymer History. *Designed Monomers and Polymers*, *11*(1), 1–15. https://doi.org/10.1163/156855508X292383

Firyanto, R. (2022). Pemanfaatan Kulit Kayu Mahoni sebagai Pewarna Alami Kain

Batik di Kelurahan Meteseh Kecamatan Tembalang Kota Semarang. *Jurnal Abdi Masyarakat Indonesia*, *2*(2), 487–494. https://doi.org/10.54082/jamsi.262

Girdthep, S., Sirirak, J., Daranarong, D., Daengngern, R., & Chayabutra, S. (2018). Physico-chemical characterization of natural lake pigments obtained from Caesalpinia Sappan Linn. and their composite films for poly(lactic acid)-based packaging materials. *Dyes and Pigments*, *157*, 27–39. https://doi.org/10.1016/J.DYEPIG.2018.04.043

Hafizah, G. T. R., Hidayati, A. R., & Permatasari, L. (2024). Comparative Analysis of a Secondary Metabolite Profile from Leaves, Peel and Bulbs of Allium sativum L. by GC-MS. *Jurnal Biologi Tropis*, *24*(3), 111–122. https://doi.org/10.29303/jbt.v24i3.7058

Haider, T. P., Völker, C., Kramm, J., Landfester, K., & Wurm, F. R. (2019). Plastics of the Future? The Impact of Biodegradable Polymers on the Environment and on Society. *Angewandte Chemie International Edition*, *58*(1), 50–62. https://doi.org/10.1002/anie.201805766

He, X., Tang, L., Zheng, J., Jin, Y., Chang, R., Yu, X., Song, Y., & Huang, R. (2023). A Novel UV Barrier Poly(lactic acid)/Poly(butylene succinate) Composite Biodegradable Film Enhanced by Cellulose Extracted from Coconut Shell. *Polymers*, *15*(14), 3000. https://doi.org/10.3390/polym15143000

Ismayati, M., Fatah, N. A. N., Ernawati, E. E., Juliandri, Kusumaningrum, W. B., Lubis, M. A. R., Fatriasari, W., Solihat, N. N., Sari, F. P., Halim, A., Cholilie, I. A., & Tobimatsu, Y. (2024). Antioxidant and UV-blocking activity of PVA/tannin-based bioplastics in food packaging application. *International Journal of Biological Macromolecules*, *257*, 128332. https://doi.org/10.1016/j.ijbiomac.2023.128332

Jailani, A., Hidzer, M. H., Firdaus, A. H. M., Sapuan, S. M., Zainudin, E. S., Atiqah, A., Wan Jaafar, W. M., & Suryanegara, L. (2025). Enhancing polyvinyl alcohol (PVA) nanocomposites: Key properties, applications and challenges in advanced engineering. *Defence Technology*, *xxxx*. https://doi.org/10.1016/j.dt.2025.05.020

Karim, F., Susilawati, S., Oswari, L. D., Fadiya, F., & Nadya, N. (2021). Uji Aktivitas Penghambatan Enzim ?-glucosidase Ekstrak Air dan Ekstrak Etanol Kayu Kuning (Arcangelisia flava). *Jurnal Kedokteran Dan Kesehatan Publikasi Ilmiah Fakultas Kedokteran Universitas Sriwijaya*, *8*(1), 53–60. https://doi.org/10.32539/V8I1.13118

Kaseke, T., Lujic, T., & Cirkovic Velickovic, T. (2023). Nano- and Microplastics Migration from Plastic Food Packaging into Dairy Products: Impact on Nutrient Digestion, Absorption, and Metabolism. *Foods*, *12*(16). https://doi.org/10.3390/foods12163043

Kasmudjiastuti, E. (2014). Karakterisasi kulit kayu tingi (Ceriops tagal) sebagai bahan penyamak nabati. *Majalah Kulit, Karet, Dan Plastik*, *30*(2), 71. https://doi.org/10.20543/mkkp.v30i2.128

Lestari, D. W., Atika, V., Satria, Y., Fitriani, A., & Susanto, T. (2020). Aplikasi Mordan Tanin pada Pewarnaan Kain Batik Katun Menggunakan Warna Alam Tingi (Ceriops tagal). *Jurnal Rekayasa Proses*, *14*(2), 128. https://doi.org/10.22146/jrekpros.57891

Liang, X., Zhong, H.-J., Ding, H., Yu, B., Ma, X., Liu, X., Chong, C.-M., & He, J. (2024). Polyvinyl Alcohol (PVA)-Based Hydrogels: Recent Progress in Fabrication, Properties, and Multifunctional Applications. *Polymers*, *16*(19), 2755. https://doi.org/10.3390/polym16192755

Maheshwaran, L., Nadarajah, L., Senadeera, S. P. N. N., Ranaweera, C. B., Chandana, A. K., & Pathirana, R. N. (2024). Phytochemical Testing Methodologies and Principles for Preliminary Screening/ Qualitative Testing. *Asian Plant Research Journal*, *12*(5), 11–38. https://doi.org/10.9734/aprj/2024/v12i5267

Marzuki, I., Mirsyah, M., & Gala, S. (2022). Identifikasi Komponen Kimia Ekstrak Daun Ketapang (Terminalia cattapa) Berdasarkan Perbandingan Metode Ekstraksi. *Al-Kimia*, *10*(1), 70–83. https://doi.org/10.24252/al-kimia.v10i1.25457

Mayarlis, & Moralita Chatri. (2024). *Potensi Ketapang (Terminalia catappa L.) sebagai TanamanObat*. *8*(2), 18504–18509.

Minata, Z. S. M., Annida Elfiana Citra Ardianty, Sumari, & Yudhi Utomo. (2023). Pengaruh Ekstrak Biji Ketapang (Terminalia catappa L.) Terhadap Daya Hambat Pertumbuhan Bakteri Eschericia coli. *KOVALEN: Jurnal Riset Kimia*, *9*(2), 173–182. https://doi.org/10.22487/kovalen.2023.v9.i2.16355

Mora, J., Pott, D. M., Osorio, S., & Vallarino, J. G. (2022). Regulation of Plant Tannin Synthesis in Crop Species. *Frontiers in Genetics*, *13*(May), 1–18. https://doi.org/10.3389/fgene.2022.870976

Murariu, M., & Dubois, P. (2016). PLA composites: From production to properties. *Advanced Drug Delivery Reviews*, *107*, 17–46. https://doi.org/10.1016/j.addr.2016.04.003

Mutiah, R., Kirana, F. O., Annisa, R., Rahmawati, A., & Sandra, F. (2020). Extract of Yellow Root (Arcangelisia Flava (L.) Merr.) from Several Regions in Kalimantan: Alkaloid Content and Cytotoxicity towards WiDr Colorectal Cancer Cells. *Indonesian Journal of Cancer Chemoprevention*, *11*(2), 84. https://doi.org/10.14499/indonesianjcanchemoprev11iss2pp84-89

Nintasari, R., & Amaliyah, D. M. (2016). Ekstraksi Zat Warna Alam dari Kayu Ulin (Eusideroxylon zwageri), Kayu Secang (Caesalpinia sp) dan Kayu Mengkudu (Morinda citrifolia) untuk Bahan Kain Sasirangan. *Jurnal Riset Industri Hasil*

Hutan, *8*(1), 25. https://doi.org/10.24111/jrihh.v8i1.2065

Nugroho, B. H., Ningrum, A. D. K., Pertiwi, D. A., Salsabila, T., & Syukri, Y. (2020). Pemanfaatan Ekstrak Daun Tin (Ficus carica L.) Berbasis Nanoteknologi Liposom Sebagai Pengobatan Antihiperglikemia. *EKSAKTA: Journal of Sciences and Data Analysis*, *19*, 216–229. https://doi.org/10.20885/eksakta.vol19.iss2.art12

Nuraida, N., Ridwanto, R., Daulay, A. S., & Nasution, H. M. (2024). Penentuan kadar flavonoid total ekstrak etanol kayu kuning (Arcangelisia flava (L.) Merr.) dan uji antibakteri Staphylococcus aureus . *Journal of Pharmaceutical and Sciences*, 411–421. https://doi.org/10.36490/journal-jps.com.v7i3.598

Nurhaini, F. F., Ramadhan, P., Santoso, M., Kurniadi, R., Dimyati, A., Kusmartini, I., Lestiani, D. D., Kurniawati, S., Damastuti, E., Atmodjo, D. P. D., Ramadhani, M. F., Syahfitri, W. Y. N., & Purnama, D. S. (2024). Preliminary Assessment of Morphology and Elemental Composition of Fine Particulates in Selected Urban Areas of Java Island. *Environment and Natural Resources Journal*, *22*(6), 483–499. https://doi.org/10.32526/ennrj/22/20240127

Osman, A. I., Hosny, M., Eltaweil, A. S., Omar, S., Elgarahy, A. M., Farghali, M., Yap, P.-S., Wu, Y.-S., Nagandran, S., Batumalaie, K., Gopinath, S. C. B., John, O. D., Sekar, M., Saikia, T., Karunanithi, P., Hatta, M. H. M., & Akinyede, K. A. (2023). Microplastic sources, formation, toxicity and remediation: a review. *Environmental Chemistry Letters*, *21*(4), 2129–2169. https://doi.org/10.1007/s10311-023-01593-3

Pal, R., & Dubey, A. (2025). *Determination of Moisture Content of Herbal Drug by Loss on Drying Method (LOD): Experiment Findings*. https://doi.org/10.13140/RG.2.2.28626.67522

Paryanto, P., Pranolo, S. H., Susanti, A. D., Putrikatama, B. T., Qatrunada, I. R., & Wibowo, A. D. (2021). Tannins Compound In Soga Tingi Bark (Ceriops Tagal) As Natural Dyes. *Equilibrium Journal of Chemical Engineering*, *5*(1), 1. https://doi.org/10.20961/equilibrium.v5i1.48505

Pękal, A., & Pyrzynska, K. (2014). Evaluation of Aluminium Complexation Reaction for Flavonoid Content Assay. *Food Analytical Methods*, *7*(9), 1776–1782. https://doi.org/10.1007/s12161-014-9814-x

Post, P. C., & Schlautman, M. A. (2020). Measuring camellia petal color using a portable color sensor. *Horticulturae*, *6*(3), 1–15. https://doi.org/10.3390/horticulturae6030053

Pratama, R. R., Ahsana, D., Sahu, R. K., Sukardiman, & Widyowati, R. (2024). A Review of Ethnomedicine, Phytochemistry, and Pharmacological Studies on Yellow Roots (Arcangelisia flava (L.) Merr.). *MALAYSIAN JOURNAL OF CHEMISTRY*, *26*(1), 224–239. https://doi.org/10.55373/mjchem.v26i1.224

Pujilestari, T. (2017). Optimasi Pencelupan Kain Batik Katun dengan Pewarna

Alam Tingi (Ceriops taga) dan Indigofera Sp. *Dinamika Kerajinan Dan Batik: Majalah Ilmiah*, *34*(1), 53–62. https://doi.org/10.22322/dkb.v34i1.2606

Raal, A., Meos, A., Hinrikus, T., Heinämäki, J., Romāne, E., Gudienė, V., Jakštas, V., Koshovyi, O., Kovaleva, A., Fursenco, C., Chiru, T., & Nguyen, H. T. (2020). Dragendorff's reagent: Historical perspectives and current status of a versatile reagent introduced over 150 years ago at the University of Dorpat, Tartu, Estonia. *Pharmazie*, *75*(7), 299–306. https://doi.org/10.1691/ph.2020.0438

Rahman Khan, M. M., & Rumon, M. M. H. (2025). Synthesis of PVA-Based Hydrogels for Biomedical Applications: Recent Trends and Advances. *Gels*, *11*(2), 1–34. https://doi.org/10.3390/gels11020088

Rahman Khan, M. M., Rumon, M. M. H., & Islam, M. (2024). Synthesis, Rheology, Morphology, and Mechanical Properties of Biodegradable PVA-Based Composite Films: A Review on Recent Progress. *Processes*, *12*(12), 2880. https://doi.org/10.3390/pr12122880

Rajeshkumar, G., Arvindh Seshadri, S., Devnani, G. L., Sanjay, M. R., Siengchin, S., Prakash Maran, J., Al-Dhabi, N. A., Karuppiah, P., Mariadhas, V. A., Sivarajasekar, N., & Ronaldo Anuf, A. (2021). Environment friendly, renewable and sustainable poly lactic acid (PLA) based natural fiber reinforced composites – A comprehensive review. *Journal of Cleaner Production*, *310*(April), 127483. https://doi.org/10.1016/j.jclepro.2021.127483

Ramli, H. K., Yuniarti, T., Lita, N. P. S. N., & Sipahutar, Y. H. (2020). Uji Fitokimia Secara Kualitatif Pada Buah dan Ekstrak Air Buah Mangrove. *Jurnal Penyuluhan Perikanan Dan Kelautan*, *14*(1), 1–12. https://doi.org/10.33378/jppik.v14i1.198

Researchers. (2025). *The Pivotal Role of Coniferaldehyde in Lignin Synthesis : A Technical Guide Coniferaldehyde in the Lignin Biosynthesis Pathway Key Enzymes in Coniferaldehyde Metabolism Quantitative Data on Enzyme Kinetics and Lignin Composition*. https://www.benchchem.com/pdf/The_Pivotal_Role_of_Coniferaldehyde_in_Lignin_Synthesis_A_Technical_Guide.pdf

Riani, S., Syamswisna, S., & Mardiyyaningsih, A. N. (2024). Studi Etnobotani Tumbuhan Pewarna Alami di Desa Raut Muara Kabupaten Sanggau. *EKOTONIA: Jurnal Penelitian Biologi, Botani, Zoologi Dan Mikrobiologi*, *8*(2), 62–71. https://doi.org/10.33019/ekotonia.v8i2.4455

Saefudin, & Basri, E. (2022). Effect of fixator on color performance of bark extract from three tropical wetland species for fabric dye. *IOP Conference Series: Earth and Environmental Science*, *976*(1), 012049. https://doi.org/10.1088/1755-1315/976/1/012049

Salauddin Sk, M., Mia, R., Haque, M. A., & Shamim, A. M. (2021). Review on

Extraction and Application of Natural Dyes. *Textile & Leather Review*, *4*(4), 218–233. https://doi.org/10.31881/TLR.2021.09

Samanta, A. K. (2018). Application of Natural Dyes to Cotton and Jute Textiles: Science and Technology and Environmental Issues. In *Handbook of Renewable Materials for Coloration and Finishing* (Issue September, pp. 213–277). Wiley. https://doi.org/10.1002/9781119407850.ch11

Sanyang, M. L., Sapuan, S. M., Jawaid, M., Ishak, M. R., & Sahari, J. (2015). Effect of Plasticizer Type and Concentration on Tensile, Thermal and Barrier Properties of Biodegradable Films Based on Sugar Palm (Arenga pinnata) Starch. *Polymers*, 1106–1124. https://doi.org/10.3390/polym7061106

Situmorang, M., & Ricky, D. (2022). Identifikasi Senyawa Bioaktif Ekstrak Etanol dan Metanol Jahe Merah (Zingiber Officinale Var.Rubrum) dengan Menggunakan Gas Chromatography-Mass Spectrometer. *Jurnal Ilmiah Multi Disiplin Indonesia*, *1*(9), 1278–1285. https://doi.org/https://doi.org/10.32670/ht.v2i01.1071

Syahadat, A., & Diningsih, A. (2022). Identification of Specific Gravity and Solubility in ethanol from citronella oil. *Journal of Public Health and Pharmacy*, *2*(1), 1–3. https://doi.org/10.56338/jphp.v2i1.3727

Symeonides, C., Aromataris, E., Mulders, Y., Dizon, J., Stern, C., Barker, T. H., Whitehorn, A., Pollock, D., Marin, T., & Dunlop, S. (2024). An Umbrella Review of Meta-Analyses Evaluating Associations between Human Health and Exposure to Major Classes of Plastic-Associated Chemicals. *Annals of Global Health*, *90*(1), 52. https://doi.org/10.5334/aogh.4459

Szadkowski, B., Kuśmierek, M., Śliwka-Kaszyńska, M., & Marzec, A. (2022). Structure and Stability Characterization of Natural Lake Pigments Made from Plant Extracts and Their Potential Application in Polymer Composites for Packaging Materials. *Materials*, *15*(13), 4608. https://doi.org/10.3390/ma15134608

Tanjung, F. A., Arifin, Y., & Husseinsyah, S. (2020). Enzymatic degradation of coconut shell powder–reinforced polylactic acid biocomposites. *Journal of Thermoplastic Composite Materials*, *33*(6), 800–816. https://doi.org/10.1177/0892705718811895

Thoriq dan Ayudya. (2024). Open Access Bioaktivitas , Sintesis , dan Pemanfaatan Tanin : Tinjauan Literatur Bioactivity , Synthesis , and Innovative Applications of Tannins. *Variable Research Journal*, *1*(1), 73–85. https://variablejournal.my.id/index.php/VRJ/article/view/8

Tokiwa, Y., & Calabia, B. P. (2004). Review Degradation of microbial polyesters. *Biotechnology Letters*, *26*(15), 1181–1189. https://doi.org/10.1023/B:BILE.0000036599.15302.e5

Whelan, V. J. (2017). Ranking Test. In *Discrimination Testing in Sensory Science:*

A Practical Handbook. Elsevier Ltd. https://doi.org/10.1016/B978-0-08-101009-9.00012-5

Wibowo, M. D., Sosiawan, P. P. K. P., Hanif, M. F., & Yuliaty, F. (2025). Kemajuan Terkini dalam Pengemasan Biodegradable: Penggunaan Kemasan Berbasis Poly (Lactic Acid) Tinjauan Sistematis. *Prosiding Seminar Sosial Politik, Bisnis, Akuntansi Dan Teknik*, *6*(1), 138–146. https://doi.org/10.32897/sobat.2024.6.1.4174

Wypych, G. (2016). Introduction. In G. Wypych (Ed.), *Handbook of Polymers (Second Edition)* (Second Edi, pp. 1–2). ChemTec Publishing. https://doi.org/https://doi.org/10.1016/B978-1-895198-92-8.50003-3

Zaied, M., Othman, H., Ghazal, H., & Hassabo, A. (2021). A valuable observation on natural plants extracts for Valuable Functionalization of Cotton fabric (an overview). *Egyptian Journal of Chemistry*, *65*(4), 0–0. https://doi.org/10.21608/ejchem.2021.96598.4519

Zhuang, G., Pedetti, S., Bourlier, Y., Jonnard, P., Méthivier, C., Walter, P., Pradier, C.-M., & Jaber, M. (2020). New Insights into the Structure and Degradation of Alizarin Lake Pigments: Input of the Surface Study Approach. *The Journal of Physical Chemistry C*, *124*(23), 12370–12380. https://doi.org/10.1021/acs.jpcc.0c00746