

## REFERENCES

- [1] A. González, E. Goikolea, J. A. Barrena, and R. Mysyk, “Review on supercapacitors: Technologies and materials,” *Renew. Sustain. Energy Rev.*, vol. 58, pp. 1189–1206, 2016, doi: 10.1016/j.rser.2015.12.249.
- [2] J. Conder, K. Fic, and T. Electrochemistry, *Supercapacitors (electrochemical capacitors) 10*. 2019.
- [3] L. Chen *et al.*, “Synthesis of Nitrogen-Doped Porous Carbon Nanofibers as an Efficient Electrode Material for Supercapacitors,” *ACS Nano*, vol. 61, no. 3, pp. 201–2012, 2012, doi: 10.1021/nn302147s.
- [4] W. Zuo, R. Li, C. Zhou, Y. Li, J. Xia, and J. Liu, “Battery-Supercapacitor Hybrid Devices: Recent Progress and Future Prospects,” *Adv. Sci.*, vol. 4, no. 7, pp. 1–21, 2017, doi: 10.1002/advs.201600539.
- [5] P. Sharma and T. S. Bhatti, “A review on electrochemical double-layer capacitors,” *Energy Convers. Manag.*, vol. 51, no. 12, pp. 2901–2912, 2010, doi: 10.1016/j.enconman.2010.06.031.
- [6] C. Largeot, C. Portet, J. Chmiola, P. L. Taberna, Y. Gogotsi, and P. Simon, “Relation between the ion size and pore size for an electric double-layer capacitor,” *J. Am. Chem. Soc.*, vol. 130, no. 9, pp. 2730–2731, 2008, doi: 10.1021/ja7106178.
- [7] R. Härmäs *et al.*, “Influence of porosity parameters and electrolyte chemical composition on the power densities of non-aqueous and ionic liquid based supercapacitors,” *Electrochim. Acta*, vol. 283, pp. 931–948, 2018, doi: 10.1016/j.electacta.2018.06.115.
- [8] K. Urita, C. Urita, K. Fujita, K. Horio, M. Yoshida, and I. Moriguchi, “The ideal porous structure of EDLC carbon electrodes with extremely high capacitance,” *Nanoscale*, vol. 9, no. 40, pp. 15643–15649, 2017, doi: 10.1039/c7nr05307j.
- [9] Y. Ji, T. Li, L. Zhu, X. Wang, and Q. Lin, “Preparation of activated carbons by microwave heating KOH activation,” vol. 254, pp. 506–512, 2007, doi:

10.1016/j.apsusc.2007.06.034.

- [10] L. Khezami, A. Ould-Dris, and R. Capart, “Activated carbon from thermo-compressed wood and other lignocellulosic precursors,” *BioResources*, vol. 2, no. 2, pp. 193–209, 2007, doi: 10.15376/biores.2.2.193-209.
- [11] N. K. N. Quach, W. D. Yang, Z. J. Chung, and H. L. Tran, “The Influence of the Activation Temperature on the Structural Properties of the Activated Carbon Xerogels and Their Electrochemical Performance,” *Adv. Mater. Sci. Eng.*, vol. 2017, 2017, doi: 10.1155/2017/8308612.
- [12] Z. Y. Li, M. S. Akhtar, D. H. Kwak, and O. B. Yang, “Improvement in the surface properties of activated carbon via steam pretreatment for high performance supercapacitors,” *Appl. Surf. Sci.*, vol. 404, pp. 88–93, 2017, doi: 10.1016/j.apsusc.2017.01.238.
- [13] Q. Lu, Y.-Y. Xu, S.-J. Mu, and W.-C. Li, “The effect of nitrogen and/or boron doping on the electrochemical performance of non-caking coal-derived activated carbons for use as supercapacitor electrodes,” *Carbon N. Y.*, vol. 130, no. 2018, p. 844, 2018, doi: 10.1016/j.carbon.2017.10.057.
- [14] T. Kim, G. Jung, S. Yoo, K. S. Suh, and R. S. Ruoff, “Activated graphene-based carbons as supercapacitor electrodes with macro- and mesopores,” *ACS Nano*, vol. 7, no. 8, pp. 6899–6905, 2013, doi: 10.1021/nn402077v.
- [15] J. Conder, K. Fic, and C. Matei Ghimbeu, *Supercapacitors (electrochemical capacitors)*. 2019.
- [16] E. E. Miller, Y. Hua, and F. H. Tezel, “Materials for energy storage: Review of electrode materials and methods of increasing capacitance for supercapacitors,” *J. Energy Storage*, vol. 20, no. August, pp. 30–40, 2018, doi: 10.1016/j.est.2018.08.009.
- [17] V. V. N. Obreja, “Supercapacitors specialities - Materials review,” *AIP Conf. Proc.*, vol. 1597, no. February, pp. 98–120, 2014, doi: 10.1063/1.4878482.
- [18] J. M. Chem, “PAPER A comprehensive study on KOH activation of ordered

- mesoporous carbons and their supercapacitor application †,” pp. 93–99, 2012, doi: 10.1039/c1jm12742j.
- [19] M. A. Raza, A. Westwood, A. Brown, N. Hondow, and C. Stirling, “Graphite nanoplatelets produced by oxidation and thermal exfoliation of graphite and electrical conductivities of their epoxy composites,” *J. Nanosci. Nanotechnol.*, vol. 12, no. 12, pp. 9259–9270, 2012, doi: 10.1166/jnn.2012.6778.
- [20] N. W. B. Balasooriya and P. Touzain, “Capacity improvement of mechanically and chemically treated Sri Lanka natural graphite as an anode material in Li-ion batteries,” pp. 305–309, 2007, doi: 10.1007/s11581-007-0114-y.
- [21] N. W. B. Balasooriya, H. P. T. S. Hewathilake, R. M. U. M. Somarathna, H. W. M. A. C. Wijayasinghe, L. P. S. Rohitha, and H. M. T. G. A. Pitawala, “Physical and Chemical Purification of Sri Lankan Flake Graphite and Vein Graphite,” *5th Int. Symp. 2015 – IntSym, SEUSL Phys.*, no. January, pp. 163–166, 2015,
- [22] L. Z. Fan, S. Qiao, W. Song, M. Wu, X. He, and X. Qu, “Effects of the functional groups on the electrochemical properties of ordered porous carbon for supercapacitors,” *Electrochim. Acta*, vol. 105, pp. 299–304, 2013, doi: 10.1016/j.electacta.2013.04.137.
- [23] C. Liu, Z. Yu, D. Neff, A. Zhamu, and B. Z. Jang, “Graphene-based supercapacitor with an ultrahigh energy density,” *Nano Lett.*, vol. 10, no. 12, pp. 4863–4868, 2010, doi: 10.1021/nl102661q.
- [24] Y. He *et al.*, “Capacitive mechanism of oxygen functional groups on carbon surface in supercapacitors,” *Electrochim. Acta*, vol. 282, pp. 618–625, 2018, doi: 10.1016/j.electacta.2018.06.103.
- [25] R. Lin, P. L. Taberna, J. Chmiola, D. Guay, Y. Gogotsi, and P. Simon, “Microelectrode Study of Pore Size, Ion Size, and Solvent Effects on the Charge/Discharge Behavior of Microporous Carbons for Electrical Double-Layer Capacitors,” *J. Electrochem. Soc.*, vol. 156, no. 1, p. A7, 2009, doi: 10.1149/1.3002376.
- [26] Y. H. Hu, H. Wang, and B. Hu, “Thinnest two-dimensional nanomaterial-

- graphene for solar energy,” *ChemSusChem*, vol. 3, no. 7, pp. 782–796, 2010, doi: 10.1002/cssc.201000061.
- [27] L. Hu *et al.*, “Direct anodic exfoliation of graphite onto high-density aligned graphene for large capacity supercapacitors,” *Nano Energy*, vol. 34, no. January, pp. 515–523, 2017, doi: 10.1016/j.nanoen.2017.03.007.
- [28] E. Kusriani, A. Suhrowati, A. Usman, M. Khalil, and V. Degirmenci, “Synthesis and characterization of graphite oxide, graphene oxide, and reduced graphene oxide from graphite waste using modified hummers’ method and zinc as reducing agent,” *Int. J. Technol.*, vol. 10, no. 6, pp. 1093–1104, 2019, doi: 10.14716/ijtech.v10i6.3639.
- [29] Z. Jiang, Z. Jiang, and W. Chen, “The role of holes in improving the performance of nitrogen-doped holey graphene as an active electrode material for supercapacitor and oxygen reduction reaction,” *J. Power Sources*, vol. 251, pp. 55–65, 2014, doi: 10.1016/j.jpowsour.2013.11.031.
- [30] D. Zhu *et al.*, “Nitrogen-doped porous carbons with nanofiber-like structure derived from poly (aniline-co-p-phenylenediamine) for supercapacitors,” *Electrochim. Acta*, vol. 224, pp. 17–24, 2017, doi: 10.1016/j.electacta.2016.12.023.
- [31] J. N. Ramavath, M. Raja, S. Kumar, and R. Kothandaraman, “Mild acidic mixed electrolyte for high-performance electrical double layer capacitor,” *Appl. Surf. Sci.*, vol. 489, pp. 867–874, 2019, doi: 10.1016/j.apsusc.2019.05.343.
- [32] Y. Lv, F. Zhang, Y. Zhai, and J. Wang, “PAPER A comprehensive study on KOH activation of ordered mesoporous carbons,” no. September, 2011, doi: 10.1039/C1JM12742J.
- [33] M. A. Lillo-Ródenas, D. Cazorla-Amorós, and A. Linares-Solano, “Understanding chemical reactions between carbons and NaOH and KOH: An insight into the chemical activation mechanism,” *Carbon N. Y.*, vol. 41, no. 2, pp. 267–275, 2003, doi: 10.1016/S0008-6223(02)00279-8.
- [34] H. C. Youn *et al.*, “High-surface-area nitrogen-doped reduced graphene oxide

- for electric double-layer capacitors,” *ChemSusChem*, vol. 8, no. 11, pp. 1875–1884, 2015, doi: 10.1002/cssc.201500122.
- [35] K. Gopalsamy, J. Balamurugan, T. D. Thanh, N. H. Kim, and J. H. Lee, “Fabrication of nitrogen and sulfur co-doped graphene nanoribbons with porous architecture for high-performance supercapacitors,” *Chem. Eng. J.*, vol. 312, pp. 180–190, 2017, doi: 10.1016/j.cej.2016.11.130.
- [36] S. Zhang and N. Pan, “Supercapacitors performance evaluation,” *Adv. Energy Mater.*, vol. 5, no. 6, pp. 1–19, 2015, doi: 10.1002/aenm.201401401.
- [37] Y. Shao *et al.*, “Design and Mechanisms of Asymmetric Supercapacitors,” *Chem. Rev.*, vol. 118, no. 18, pp. 9233–9280, 2018, doi: 10.1021/acs.chemrev.8b00252.
- [38] Y. Wang, Y. Song, and Y. Xia, “Electrochemical capacitors: Mechanism, materials, systems, characterization and applications,” *Chem. Soc. Rev.*, vol. 45, no. 21, pp. 5925–5950, 2016, doi: 10.1039/c5cs00580a.
- [39] J. Libich, J. Máca, J. Vondrák, O. Čech, and M. Sedlaříková, “Supercapacitors: Properties and applications,” *J. Energy Storage*, vol. 17, no. March, pp. 224–227, 2018, doi: 10.1016/j.est.2018.03.012.
- [40] R. German, P. Venet, A. Sari, O. Briat, and J. M. Vinassa, “Electrochemical Double Layer Capacitors (supercapacitors) ageing impacts and comparison on different impedance models,” *EPE J. (European Power Electron. Drives Journal)*, vol. 24, no. 3, pp. 6–13, 2014, doi: 10.1080/09398368.2014.11742747.
- [41] X. Chen, R. Paul, and L. Dai, “Carbon-based supercapacitors for efficient energy storage,” *Natl. Sci. Rev.*, vol. 4, no. 3, pp. 453–489, 2017, doi: 10.1093/nsr/nwx009.
- [42] J.-H. Lee, S. Park, and J.-W. Choi, “Electrical Property of Graphene and Its Application to Electrochemical Biosensing,” *Nanomaterials*, vol. 9, no. 2, p. 297, 2019, doi: 10.3390/nano9020297.
- [43] G. Leofanti, M. Padovan, G. Tozzola, and B. Venturelli, “Surface area and pore

- texture of catalysts,” *Catal. Today*, vol. 41, no. 1–3, pp. 207–219, 1998, doi: 10.1016/S0920-5861(98)00050-9.
- [44] Y. Wen, G. Cao, J. Cheng, and Y. Yang, “Correlation of capacitance with the pore structure for nanoporous glassy carbon electrodes,” *J. Electrochem. Soc.*, vol. 152, no. 9, pp. 1770–1775, 2005, doi: 10.1149/1.1984447.
- [45] S. M. Lamine, C. Ridha, H. M. Mahfoud, C. Mouad, B. Lotfi, and A. H. Al-Dujaili, “Chemical activation of an activated carbon prepared from coffee residue,” *Energy Procedia*, vol. 50, pp. 393–400, 2014, doi: 10.1016/j.egypro.2014.06.047.
- [46] C. Portet, Z. Yang, Y. Korenblit, Y. Gogotsi, R. Mokaya, and G. Yushin, “Electrical double-layer capacitance of zeolite-templated carbon in organic electrolyte,” *J. Electrochem. Soc.*, vol. 156, no. 1, pp. 1–6, 2009, doi: 10.1149/1.3002375.
- [47] J. S. Moon, H. Kim, D. C. Lee, J. T. Lee, and G. Yushin, “Increasing capacitance of zeolite-templated carbons in electric double layer capacitors,” *J. Electrochem. Soc.*, vol. 162, no. 5, pp. A5070–A5076, 2015, doi: 10.1149/2.0131505jes.
- [48] Z. He *et al.*, “The effect of activation methods on the electrochemical performance of ordered mesoporous carbon for supercapacitor applications,” *J. Mater. Sci.*, vol. 52, no. 5, pp. 2422–2434, 2017, doi: 10.1007/s10853-016-0536-x.
- [49] I. Yang, S. G. Kim, S. H. Kwon, M. S. Kim, and J. C. Jung, “Relationships between pore size and charge transfer resistance of carbon aerogels for organic electric double-layer capacitor electrodes,” *Electrochim. Acta*, vol. 223, pp. 21–30, 2017, doi: 10.1016/j.electacta.2016.11.177.
- [50] L. J. Wang *et al.*, “Flash Converted Graphene for Ultra-High Power Supercapacitors,” *Adv. Energy Mater.*, vol. 5, no. 18, pp. 1–8, 2015, doi: 10.1002/aenm.201500786.
- [51] S. Kerisit, B. Schwenzer, and M. Vijayakumar, “Effects of oxygen-containing

- functional groups on supercapacitor performance,” *J. Phys. Chem. Lett.*, vol. 5, no. 13, pp. 2330–2334, 2014, doi: 10.1021/jz500900t.
- [52] L. Sun *et al.*, “Nitrogen-doped graphene with high nitrogen level via a one-step hydrothermal reaction of graphene oxide with urea for superior capacitive energy storage,” *RSC Adv.*, vol. 2, no. 10, pp. 4498–4506, 2012, doi: 10.1039/c2ra01367c.
- [53] K. Pinkert *et al.*, “Role of surface functional groups in ordered mesoporous carbide-derived carbon/ionic liquid electrolyte double-layer capacitor interfaces,” *ACS Appl. Mater. Interfaces*, vol. 6, no. 4, pp. 2922–2928, 2014, doi: 10.1021/am4055029.
- [54] M. P. Kumar, T. Kesavan, G. Kalita, P. Ragupathy, T. N. Narayanan, and D. K. Pattanayak, “On the large capacitance of nitrogen doped graphene derived by a facile route,” *RSC Adv.*, vol. 4, no. 73, pp. 38689–38697, 2014, doi: 10.1039/c4ra04927f.
- [55] A. K. Geim, “Random walk to graphene (Nobel lecture),” *Angew. Chemie - Int. Ed.*, vol. 50, no. 31, pp. 6966–6985, 2011, doi: 10.1002/anie.201101174.
- [56] C. Lee, X. Wei, J. W. Kysar, and J. Hone, “Measurement of the elastic properties and intrinsic strength of monolayer graphene,” *Science (80-. )*, vol. 321, no. 5887, pp. 385–388, 2008, doi: 10.1126/science.1157996.
- [57] Y. Zhu *et al.*, “Graphene and graphene oxide: Synthesis, properties, and applications,” *Adv. Mater.*, vol. 22, no. 35, pp. 3906–3924, 2010, doi: 10.1002/adma.201001068.
- [58] Y. Lin, Y. Liao, Z. Chen, and J. W. Connell, “Holey graphene: a unique structural derivative of graphene,” *Mater. Res. Lett.*, vol. 5, no. 4, pp. 209–234, 2017, doi: 10.1080/21663831.2016.1271047.
- [59] F. Barzegar, A. Bello, J. K. Dangbegnon, N. Manyala, and X. Xia, “Asymmetric supercapacitor based on activated expanded graphite and pinecone tree activated carbon with excellent stability,” *Appl. Energy*, vol. 207, pp. 417–426, 2017, doi: 10.1016/j.apenergy.2017.05.110.

- [60] K. O. Oyedotun, T. M. Masikhwa, S. Lindberg, A. Matic, P. Johansson, and N. Manyala, "Comparison of ionic liquid electrolyte to aqueous electrolytes on carbon nanofibres supercapacitor electrode derived from oxygen-functionalized graphene," *Chem. Eng. J.*, vol. 375, p. 121906, 2019, doi: 10.1016/j.cej.2019.121906.
- [61] G. H. Films *et al.*, "Flexible Solid-State Supercapacitors Based on Three-Dimensional," no. 5, pp. 4042–4049, 2013.
- [62] S. Mundinamani, "The choice of noble electrolyte for symmetric polyurethane-graphene composite supercapacitors," *Int. J. Hydrogen Energy*, vol. 44, no. 21, pp. 11240–11246, 2019, doi: 10.1016/j.ijhydene.2019.02.164.
- [63] S. Ye, J. Feng, and P. Wu, "Deposition of three-dimensional graphene aerogel on nickel foam as a binder-free supercapacitor electrode," *ACS Appl. Mater. Interfaces*, vol. 5, no. 15, pp. 7122–7129, 2013, doi: 10.1021/am401458x.
- [64] B. Zheng, T. Chen, and F. Xiao, "KOH-activated nitrogen-doped graphene by means of thermal annealing for supercapacitor," pp. 1809–1814, 2013, doi: 10.1007/s10008-013-2101-8.
- [65] K. Kierzek, E. Frackowiak, G. Lota, G. Gryglewicz, and J. Machnikowski, "Electrochemical capacitors based on highly porous carbons prepared by KOH activation," vol. 49, pp. 515–523, 2004, doi: 10.1016/j.electacta.2003.08.026.
- [66] S. Wu, G. Chen, N. Y. Kim, K. Ni, W. Zeng, and Y. Zhao, "Creating Pores on Graphene Platelets by Low-Temperature KOH Activation for Enhanced Electrochemical Performance," no. 17, pp. 2376–2384, 2016, doi: 10.1002/sml.201503855.
- [67] M. Horn, B. Gupta, J. MacLeod, J. Liu, and N. Motta, "Graphene-based supercapacitor electrodes: Addressing challenges in mechanisms and materials," *Curr. Opin. Green Sustain. Chem.*, vol. 17, pp. 42–48, 2019, doi: 10.1016/j.cogsc.2019.03.004.
- [68] M. M. et al . Bhuyan, M.S.A, Uddin, M.n., Islam, "Synthesis of graphene," *Int. Nano Lett.*, vol. 6, no. 2, pp. 65–83, 2016, doi: 10.1007/s40089-015-0176-1.

- [69] W. S. Hummers and R. E. Offeman, "Preparation of Graphitic Oxide," *J. Am. Chem. Soc.*, vol. 80, no. 6, p. 1339, 1958, doi: 10.1021/ja01539a017.
- [70] Y. Hernandez *et al.*, "High-yield production of graphene by liquid-phase exfoliation of graphite," *Nat. Nanotechnol.*, vol. 3, no. 9, pp. 563–568, 2008, doi: 10.1038/nnano.2008.215.
- [71] T. E. Thompson, "Graphite intercalation compounds," *Phys. Today*, vol. 31, no. 7, pp. 36–45, 1978, doi: 10.1063/1.2995104.
- [72] A. A. F. Novoselov, A. K. Geim, S. V. Morozov, D. Jiang, Y. Zhang, S. V. Dubonos, I. V. Grigorieva, "Electric Field Effect in Atomically Thin Carbon Films," vol. 666, no. 2004, pp. 666–669, 2013, doi: 10.1126/science.1102896.
- [73] V. Sharma, A. Garg, and S. Chander Sood, "Graphene Synthesis via Exfoliation of Graphite by Ultrasonication," *Int. J. Eng. Trends Technol.*, vol. 26, no. 1, pp. 37–42, 2015, doi: 10.14445/22315381/ijett-v26p208.
- [74] C. N. R. Rao, U. Maitra, and H. S. S. R. Matte, "Synthesis, Characterization, and Selected Properties of Graphene," *Graphene Synth. Prop. Phenom.*, pp. 1–47, 2012, doi: 10.1002/9783527651122.ch1.
- [75] H. Hashimoto, Y. Muramatsu, Y. Nishina, and H. Asoh, "Bipolar anodic electrochemical exfoliation of graphite powders," *Electrochem. commun.*, vol. 104, no. June, p. 106475, 2019, doi: 10.1016/j.elecom.2019.06.001.
- [76] M. S. A. Bhuyan, M. N. Uddin, M. M. Islam, F. A. Bipasha, and S. S. Hossain, "Synthesis of graphene," *Int. Nano Lett.*, vol. 6, no. 2, pp. 65–83, 2016, doi: 10.1007/s40089-015-0176-1.
- [77] M. Zhou, F. Pu, Z. Wang, and S. Guan, "Nitrogen-doped porous carbons through KOH activation with superior performance in supercapacitors," *Carbon N. Y.*, vol. 68, pp. 185–194, 2013, doi: 10.1016/j.carbon.2013.10.079.
- [78] J. Feng and Z. Guo, "Wettability of graphene: From influencing factors and reversible conversions to potential applications," *Nanoscale Horizons*, vol. 4, no. 2, pp. 526–530, 2019, doi: 10.1039/c8nh00348c.

- [79] O. Akhavan, E. Ghaderi, E. Abouei, S. Hatamie, and E. Ghasemi, *Accelerated differentiation of neural stem cells into neurons on ginseng-reduced graphene oxide sheets*, vol. 66. Elsevier Ltd, 2014.
- [80] N. Díez, A. Liwak, S. Gryglewicz, B. Grzyb, and G. Gryglewicz, “Enhanced reduction of graphene oxide by high-pressure hydrothermal treatment,” *RSC Adv.*, vol. 5, no. 100, pp. 81831–81837, 2015, doi: 10.1039/c5ra14461b.
- [81] M. Wei *et al.*, “Engineering reduced graphene oxides with enhanced electrochemical properties through multiple-step reductions,” *Electrochim. Acta*, vol. 258, pp. 735–743, 2017, doi: 10.1016/j.electacta.2017.11.120.
- [82] Z. Wei *et al.*, “Nanoscale tunable reduction of graphene oxide for graphene electronics,” *Science (80-. )*, vol. 328, no. 5984, pp. 1373–1376, 2010, doi: 10.1126/science.1188119.
- [83] R. S. Cherian, S. Sandeman, S. Ray, I. N. Savina, J. Ashtami, and P. V. Mohanan, “Green synthesis of Pluronic stabilized reduced graphene oxide: Chemical and biological characterization,” *Colloids Surfaces B Biointerfaces*, vol. 179, pp. 94–106, 2019, doi: 10.1016/j.colsurfb.2019.03.043.
- [84] W. Gao, “The chemistry of graphene oxide,” *Graphene Oxide Reduct. Recipes, Spectrosc. Appl.*, pp. 61–95, 2015, doi: 10.1007/978-3-319-15500-5\_3.
- [85] H. Wang, Q. Fu, and C. Pan, “Green mass synthesis of graphene oxide and its MnO<sub>2</sub> composite for high performance supercapacitor,” *Electrochim. Acta*, vol. 312, pp. 11–21, 2019, doi: 10.1016/j.electacta.2019.04.178.
- [86] M. Ghorbani, H. Abdizadeh, and M. R. Golobostanfard, “Reduction of Graphene Oxide via Modified Hydrothermal Method,” *Procedia Mater. Sci.*, vol. 11, no. 2009, pp. 326–330, 2015, doi: 10.1016/j.mspro.2015.11.104.
- [87] J. M. Calo, “Carbon activation with KOH as explored by temperature programmed techniques , and the effects of hydrogen,” vol. 45, pp. 2529–2536, 2007, doi: 10.1016/j.carbon.2007.08.021.
- [88] J. Díaz-Terán, D. M. Nevskaja, J. L. G. Fierro, A. J. López-Peinado, and A.

- Jerez, “Study of chemical activation process of a lignocellulosic material with KOH by XPS and XRD,” *Microporous Mesoporous Mater.*, vol. 60, no. 1–3, pp. 173–181, 2003, doi: 10.1016/S1387-1811(03)00338-X.
- [89] M. Kunowsky, B. Weinberger, and F. L. Darkrim, “Impact of the carbonisation temperature on the activation of carbon fibres and their application for hydrogen storage.”
- [90] B. Khalid, Q. Meng, R. Akram, and B. Cao, “Effects of KOH activation on surface area , porosity and desalination performance of coconut carbon electrodes,” vol. 3994, no. January, 2016, doi: 10.1080/19443994.2014.979448.
- [91] M. Li, W. Li, and S. Liu, “Hydrothermal synthesis , characterization , and KOH activation of carbon spheres from glucose,” *Carbohydr. Res.*, vol. 346, no. 8, pp. 999–1004, 2011, doi: 10.1016/j.carres.2011.03.020.
- [92] X. Gao, C. Zhan, X. Yu, Q. Liang, R. Lv, and G. Gai, “A High Performance Lithium-Ion Capacitor with Both Electrodes Prepared from Sri Lanka Graphite Ore,” 2017, doi: 10.3390/ma10040414.
- [93] C. Lenser and N. H. Menzler, “Impedance characterization of supported oxygen ion conducting electrolytes,” *Solid State Ionics*, vol. 334, no. January, pp. 70–81, 2019, doi: 10.1016/j.ssi.2019.01.031.
- [94] L. Yu and G. Z. Chen, “Ionic Liquid-Based Electrolytes for Supercapacitor and Supercapattery,” *Front. Chem.*, vol. 7, 2019, doi: 10.3389/fchem.2019.00272.
- [95] S. K. Tiwari, J. Mishra, G. Hatui, and G. C. Nayak, “Conducting Polymer Hybrids,” pp. 117–142, 2017, doi: 10.1007/978-3-319-46458-9.
- [96] J. Zhang, C. Zhong, Y. Deng, W. Hu, J. Qiao, and L. Zhang, “A review of electrolyte materials and compositions for electrochemical supercapacitors,” *Chem. Soc. Rev.*, vol. 44, no. 21, pp. 7484–7539, 2015, doi: 10.1039/c5cs00303b.
- [97] S. Vivekchand and C. Rout, “Graphene-based electrochemical supercapacitors,” *J. Chem. ...*, vol. 120, no. 1, pp. 9–13, 2008.

- [98] A. Raghunandan, M. Yeddala, P. Padikassu, and R. Pitchai, “Partially Exfoliated Graphite Paper as Free-Standing Electrode for Supercapacitors,” *ChemistrySelect*, vol. 3, no. 18, pp. 5032–5039, 2018, doi: 10.1002/slct.201800370.
- [99] Z. Zhao, X. Wang, M. Yao, L. Liu, Z. Niu, and J. Chen, “Activated carbon felts with exfoliated graphene nanosheets for flexible all-solid-state supercapacitors,” *Chinese Chem. Lett.*, vol. 30, no. 4, pp. 915–918, 2019, doi: 10.1016/j.cclet.2019.03.003.
- [100] M. Ghaffari *et al.*, “High-Volumetric Performance Aligned Nano- Porous Microwave Exfoliated Graphite Oxide-based Electrochemical Capacitors,” pp. 4879–4885, 2013, doi: 10.1002/adma.201301243.
- [101] M. Hamed, J. Wigenius, F. Tai, P. Björk, and D. Aili, “Linköping University Post Print Polypeptide-guided assembly of conducting polymer nanocomposites Polypeptide-Guided Assembly of Conducting Polymer Nanocomposites,” no. 2, pp. 2058–2061, 2010, doi: 10.1039/b000000x.
- [102] H. Y. Li, Y. Yu, L. Liu, L. Liu, and Y. Wu, “One-step electrochemically expanded graphite foil for flexible all-solid supercapacitor with high rate performance,” *Electrochim. Acta*, vol. 228, pp. 553–561, 2017, doi: 10.1016/j.electacta.2017.01.063.
- [103] M. Kyung *et al.*, “Factors in electrode fabrication for performance enhancement of anion exchange membrane water electrolysis,” *J. Power Sources*, vol. 347, pp. 283–290, 2017, doi: 10.1016/j.jpowsour.2017.02.058.
- [104] Y. He *et al.*, “Capacitive mechanism of oxygen functional groups on carbon surface in supercapacitors,” *Electrochim. Acta*, vol. 282, no. 5, pp. 618–625, 2018, doi: 10.1016/j.electacta.2018.06.103.
- [105] A. Bakandritsos, P. Jakubec, M. Pykal, and M. Otyepka, “Covalently functionalized graphene as a supercapacitor electrode material,” *FlatChem*, vol. 13, no. December, pp. 25–33, 2019, doi: 10.1016/j.flatc.2018.12.004.
- [106] L. Guan, L. Yu, and G. Z. Chen, “Capacitive and non-capacitive faradaic charge

- storage,” *Electrochim. Acta*, vol. 206, pp. 464–478, 2016, doi: 10.1016/j.electacta.2016.01.213.
- [107] M. J. Bleda-Martínez, J. A. Maciá-Agulló, D. Lozano-Castelló, E. Morallón, D. Cazorla-Amorós, and A. Linares-Solano, “Role of surface chemistry on electric double layer capacitance of carbon materials,” *Carbon N. Y.*, vol. 43, no. 13, pp. 2677–2684, 2005, doi: 10.1016/j.carbon.2005.05.027.
- [108] Y. Wang *et al.*, “Supercapacitor devices based on graphene materials,” *J. Phys. Chem. C*, vol. 113, no. 30, pp. 13103–13107, 2009, doi: 10.1021/jp902214f.
- [109] F. Barzegar, A. Bello, D. Momodu, M. J. Madito, J. Dangbegnon, and N. Manyala, “Preparation and characterization of porous carbon from expanded graphite for high energy density supercapacitor in aqueous electrolyte,” *J. Power Sources*, vol. 309, pp. 245–253, 2016, doi: 10.1016/j.jpowsour.2016.01.097.
- [110] N. C. Karunaratne and A. C. Wijayasinghe, “Amelioration of Sri Lankan Vein Graphite As an Advance Electrode Material for the Anode Application in Li-Ion Rechargeable Batteries Electrode Material for the Anode Application in Li-Ion,” no. December, pp. 159–162, 2015.
- [111] H. P. T. Sasanka Hewathilake, N. Karunaratne, A. Wijayasinghe, N. W. B. Balasooriya, and A. K. Arof, “Performance of developed natural vein graphite as the anode material of rechargeable lithium ion batteries,” *Ionics (Kiel)*, vol. 23, no. 6, pp. 1417–1422, 2017, doi: 10.1007/s11581-016-1953-1.
- [112] T. H. N. G. Amaraweera, N. W. B. Balasooriya, and H. W. M. A. C. Wijayasinghe, “Purity Enhancement of Sri Lankan Vein Graphite for Lithium - ion Rechargeable Battery Anode,” *29th Tech. Sess. Geol. Soc. Sri Lanka*, vol. 2013, pp. 101–104, 2013.
- [113] S. Lanka, S. Lanka, S. Lanka, S. Lanka, and S. Lanka, “Physical and Chemical Purification of Sri Lankan Flake,” vol. 2017, no. January 2015, pp. 163–166, 2015.
- [114] N. G. Amaraweera and A. C. Wijayasinghe, “Study of Thermal Behavior of

Vein Graphite for Advance Study of Thermal Behavior of Vein Graphite for Advance Technological Applications,” no. April, 2017.

- [115] T. H. N. G. Amaraweera, N. W. B. Balasooriya, H. W. M. A. C. Wijayasinghe, A. N. B. Attanayake, B. E. Mellander, and M. A. K. L. Dissanayake, “Surface modification of natural vein graphite for the anode application in Li-ion rechargeable batteries,” *Ionics (Kiel)*, vol. 24, no. 11, pp. 3423–3429, 2018, doi: 10.1007/s11581-018-2523-5.
- [116] C. B. Dissanayake, R. P. Gunawardena, and D. M. S. K. Dinalankara, “Trace elements in vein graphite of Sri Lanka,” *Chem. Geol.*, vol. 68, no. 1–2, pp. 121–128, 1988, doi: 10.1016/0009-2541(88)90091-5.
- [117] N. W. B. Balasooriya, P. Touzain, and P. W. S. K. Bandaranayake, “Lithium electrochemical intercalation into mechanically and chemically treated Sri Lanka natural graphite,” *J. Phys. Chem. Solids*, vol. 67, no. 5–6, pp. 1213–1217, 2006, doi: 10.1016/j.jpcs.2006.01.051.
- [118] W. Zhang *et al.*, “Fast and considerable adsorption of methylene blue dye onto graphene oxide,” *Bull. Environ. Contam. Toxicol.*, vol. 87, no. 1, pp. 86–90, 2011, doi: 10.1007/s00128-011-0304-1.
- [119] P. Montes-Navajas, N. G. Asenjo, R. Santamaría, R. Menéndez, A. Corma, and H. García, “Surface area measurement of graphene oxide in aqueous solutions,” *Langmuir*, vol. 29, no. 44, pp. 13443–13448, 2013, doi: 10.1021/la4029904.
- [120] C. A. Nunes and M. C. Guerreiro, “Estimation of surface area and pore volume of activated carbons by methylene blue and iodine numbers,” *Quim. Nova*, vol. 34, no. 3, pp. 472–476, 2011, doi: 10.1590/S0100-40422011000300020.
- [121] S. Altenor, B. Carene, E. Emmanuel, J. Lambert, J. J. Ehrhardt, and S. Gaspard, “Adsorption studies of methylene blue and phenol onto vetiver roots activated carbon prepared by chemical activation,” *J. Hazard. Mater.*, vol. 165, no. 1–3, pp. 1029–1039, 2009, doi: 10.1016/j.jhazmat.2008.10.133.
- [122] G. Annadurai, L. Y. Ling, and J. F. Lee, “Adsorption of reactive dye from an aqueous solution by chitosan: isotherm, kinetic and thermodynamic analysis,”

- J. Hazard. Mater.*, vol. 152, no. 1, pp. 337–346, 2008, doi: 10.1016/j.jhazmat.2007.07.002.
- [123] Y. Li *et al.*, “Methylene blue adsorption on graphene oxide/calcium alginate composites,” *Carbohydr. Polym.*, vol. 95, no. 1, pp. 501–507, 2013, doi: 10.1016/j.carbpol.2013.01.094.
- [124] Y. Li *et al.*, “Comparative study of methylene blue dye adsorption onto activated carbon, graphene oxide, and carbon nanotubes,” *Chem. Eng. Res. Des.*, vol. 91, no. 2, pp. 361–368, 2013, doi: 10.1016/j.cherd.2012.07.007.
- [125] A. S. Franca, L. S. Oliveira, and M. E. Ferreira, “Kinetics and equilibrium studies of methylene blue adsorption by spent coffee grounds,” *Desalination*, vol. 249, no. 1, pp. 267–272, 2009, doi: 10.1016/j.desal.2008.11.017.
- [126] G. A. Adebisi, Z. Z. Chowdhury, and P. A. Alaba, “Equilibrium, kinetic, and thermodynamic studies of lead ion and zinc ion adsorption from aqueous solution onto activated carbon prepared from palm oil mill effluent,” *J. Clean. Prod.*, vol. 148, pp. 958–968, 2017, doi: 10.1016/j.jclepro.2017.02.047.
- [127] G. Crini and P. M. Badot, “Application of chitosan, a natural aminopolysaccharide, for dye removal from aqueous solutions by adsorption processes using batch studies: A review of recent literature,” *Prog. Polym. Sci.*, vol. 33, no. 4, pp. 399–447, 2008, doi: 10.1016/j.progpolymsci.2007.11.001.
- [128] O. Adam, “Removal of Resorcinol from Aqueous Solution by Activated Carbon: Isotherms, Thermodynamics and Kinetics,” *Am. Chem. Sci. J.*, vol. 16, no. 1, pp. 1–13, 2016, doi: 10.9734/acsj/2016/27637.
- [129] C. Srinivasakannan and N. Balasubramaniam, “Analysis of various experimental methods and preparation of mesoporous activated carbon powders from sawdust using phosphoric acid,” *Part. Sci. Technol.*, vol. 25, no. 6, pp. 535–548, 2007, doi: 10.1080/02726350701490896.
- [130] S. J. Allen, G. McKay, and J. F. Porter, “Adsorption isotherm models for basic dye adsorption by peat in single and binary component systems,” vol. 280, pp. 322–333, 2004, doi: 10.1016/j.jcis.2004.08.078.

- [131] M. M. El Jamal, H. A. Awala, and M. M. El Jamal, "Equilibrium and kinetics study of some dyes onto feldspar," no. Iv, pp. 45–52, 2011.
- [132] A. Regti, A. El Kassimi, M. R. Laamari, and M. El Haddad, "Competitive adsorption and optimization of binary mixture of textile dyes : A factorial design analysis," *J. Assoc. Arab Univ. Basic Appl. Sci.*, 2016, doi: 10.1016/j.jaubas.2016.07.005.
- [133] R. Farkas, "Methylene Blue Adsorption Study on Microcline Particles in the Function of Particle Size Range," 2019.
- [134] M. Sohail *et al.*, "Modified and improved Hummer's synthesis of graphene oxide for capacitors applications," *Mod. Electron. Mater.*, vol. 3, no. 3, pp. 110–116, 2017, doi: 10.1016/j.moem.2017.07.002.
- [135] W. Peng, G. Han, Y. Huang, Y. Cao, and S. Song, "Insight the effect of crystallinity of natural graphite on the electrochemical performance of reduced graphene oxide," *Results Phys.*, vol. 11, no. July, pp. 131–137, 2018, doi: 10.1016/j.rinp.2018.08.055.
- [136] G. J. Simandl, S. Paradis, and C. Akam, "Graphite deposit types , their origin , and economic significance," *Br. Columbia Geol. Surv. Pap.*, vol. 3, no. Symposium on Strategic and Critical Materials Proceedings, pp. 163–171, 2015.
- [137] C. W. Chang, M. H. Hon, and I. C. Leu, "Ultrasound-Assisted Preparation of Large-Area Few-Layer Graphene," *ECS J. Solid State Sci. Technol.*, vol. 4, no. 3, pp. M18–M23, 2015, doi: 10.1149/2.0261503jss.
- [138] C. H. Manoratne, S. R. D. Rosa, and I. R. M. Kottegoda, "XRD-HTA, UV Visible, FTIR and SEM Interpretation of Reduced Graphene Oxide Synthesized from High Purity Vein Graphite," *Mater. Sci. Res. India*, vol. 14, no. 1, pp. 19–30, 2017, doi: 10.13005/msri/140104.
- [139] N. I. Zaaba, K. L. Foo, U. Hashim, S. J. Tan, W. W. Liu, and C. H. Voon, "Synthesis of Graphene Oxide using Modified Hummers Method: Solvent Influence," *Procedia Eng.*, vol. 184, pp. 469–477, 2017, doi: 10.1016/j.proeng.2017.04.118.

- [140] S. N. Alam, N. Sharma, and L. Kumar, "Synthesis of Graphene Oxide (GO) by Modified Hummers Method and Its Thermal Reduction to Obtain Reduced Graphene Oxide (rGO)\*," *Graphene*, vol. 06, no. 01, pp. 1–18, 2017, doi: 10.4236/graphene.2017.61001.
- [141] J. Wang and S. Kaskel, "Feature article: KOH activation of carbon-based materials for energy storage," no. June 2004, 2012, doi: 10.1039/c2jm34066f.
- [142] F. F. Hatta, M. Z. A. Yahya, A. M. M. Ali, R. H. Y. Subban, M. K. Harun, and A. A. Mohamad, "Electrical conductivity studies on PVA/PVP-KOH alkaline solid polymer blend electrolyte," *Ionics (Kiel)*, vol. 11, no. 5–6, pp. 418–422, 2005, doi: 10.1007/BF02430259.
- [143] A. C. Lua and T. Yang, "Effect of activation temperature on the textural and chemical properties of potassium hydroxide activated carbon prepared from pistachio-nut shell," *J. Colloid Interface Sci.*, vol. 274, no. 2, pp. 594–601, 2004, doi: 10.1016/j.jcis.2003.10.001.