DAFTAR PUSTAKA

Alesary, H.F., Ismail, H.K., Khudhair, A.F. & Mohammed, M.Q., 2018, Effects of Dopant Ions on the Properties of Polyaniline Conducting Polymer, *Oriental Journal of Chemistry*, 34(5), 2525–2533.

Bai, Y., Zhu, R., Zhao, J. & Cui, G., 2024, Super-Nernstian model based on acid doped polyaniline pH sensor, *Microchemical Journal*, 203, 110715.

Bowler, N. & Huang, Y., 2005, Electrical Conductivity Measurement of Metal Plates Using Broadband Eddy-Current And Four-Point Methods, *Measurement Science and Technology*, 16(11), 2193–2200.

Bunaciu, A.A., Udriştioiu, E.G. & Aboul-Enein, H.Y., 2015, X-Ray Diffraction: Instrumentation and Applications, *Critical Reviews in Analytical Chemistry*. Taylor and Francis Ltd., 289–299.

Camargo, J.R., Orzari, L.O., Araújo, D.A.G., de Oliveira, P.R., Kalinke, C., Rocha, D.P., Luiz dos Santos, A., Takeuchi, R.M., Munoz, R.A.A., Bonacin, J.A. & Janegitz, B.C., 2021, Development of conductive inks for electrochemical sensors and biosensors, *Microchemical Journal*, 164, 105998.

Chen, R., Cheung, C.F., Zhang, Q., Luo, T., Gao, R., Zhou, W. & Wang, C., 2025, Ultra-Sensitive and Linear Flexible Pressure Sensors with Tri-Scale Graded Microstructures for Advanced Health Monitoring and Robotic Perception, *Advanced Science*, 1–14.

Elgrishi, N., Rountree, K.J., McCarthy, B.D., Rountree, E.S., Eisenhart, T.T. & Dempsey, J.L., 2018, A Practical Beginner's Guide to Cyclic Voltammetry, *Journal of Chemical Education*, 95(2), 197–206.

de Freitas, R.C., Fonseca, W.T., Azzi, D.C., Raymundo-Pereira, P.A., Oliveira, O.N. & Janegitz, B.C., 2023, Flexible Electrochemical Sensor Printed With Conductive Ink Made With Craft Glue And Graphite to Detect Drug And Neurotransmitter, *Microchemical Journal*, *191*, 1–8.

Fu, H., Ma, X., Hou, D., Wang, X., Lou, S. & Sheng, X., 2025, Ultrahigh Sensitive Dual-Parameter Sensor Based on Wall-Core Capillary Fiber for Simultaneous Detection of Magnetic Field And Temperature, *Optics Express*, 33(18), 37412.

Harvey, D.T., 2022, Instrumental Analysis, *Chemistry & Biochemistry Faculty Publications* [*Preprint*].

Hossain, M.S., Padmanathan, N., Badal, M.M.R., Razeeb, K.M. & Jamal, M., 2024, Highly Sensitive Potentiometric PH Sensor Based on Polyaniline Modified Carbon Fiber Cloth for Food and Pharmaceutical Applications, *ACS Omega* [*Preprint*].

Hui, X., Sharifuzzaman, M., Sharma, S., Park, C.I., Yoon, S., Kim, D.H. & Park, J.Y., 2022, A Nanocomposite-Decorated Laser-Induced Graphene-Based Multi-Functional Hybrid Sensor for Simultaneous Detection of Water Contaminants, *Analytica Chimica Acta*, 1209, 339872.

Jia, Z., Wang, X., Thevenet, F., Rousseau, A., Zixian Jia, C. & Polytechnique, E., 2017, Dynamic Probing of Plasma-Catalytic Surface Processes: Oxidation of

Toluene on CeO_2, *Plasma Process Polym,* e1600114, (https://doi.org/10.1002/ppap.201600114).

Kalambate, P.K., Upadhyay, S.S., Singh, S., Laiwattanapaisal, W. & Dhanjai, 2025, Disposable Paper-Based Electrochemical Sensor for Hydroquinone Detection In Environmental Samples Using A Mxene-CNT Hybrid Composite, *Microchimica Acta*, 192(10).

Kanoun, O., Lazarević-Pašti, T., Pašti, I., Nasraoui, S., Talbi, M., Brahem, A., Adiraju, A., Sheremet, E., Rodriguez, R.D., Ali, M. Ben & Al-Hamry, A., 2021, A Review of Nanocomposite-Modified Electrochemical Sensors for Water Quality Monitoring, *Sensors 2021*, Vol. 21, Page 4131, 21(12), 4131.

Karipoth, P., Pullanchiyodan, A., Christou, A. & Dahiya, R., 2021, Graphite-Based Bioinspired Piezoresistive Soft Strain Sensors with Performance Optimized for Low Strain Values, *ACS Applied Materials & Interfaces*, 13(51), 61610–61619.

Keithley, 2014, *Resistivity Measurements Using the Model 2450 SourceMeter® SMU Instrument and a Four-Point Collinear Probe*. Cleveland.

Li, S., Wang, Y., Xia, J., Zhuge, C., Lu, W. & Li, N., 2024, A Flexible Nylon-Spandex Fabric-Supported PVA/PANI Hydrogel Sensor with High Strength and Conductivity, *ACS Applied Polymer Materials*, 6(15), 8756–8766.

Li, Y., Mao, Y., Xiao, C., Xu, X. & Li, X., 2019a, Flexible Ph Sensor Based on A Conductive PANI Membrane for Ph Monitoring, *RSC Advances*, 10(1), 21–28.

Li, Y., Mao, Y., Xiao, C., Xu, X. & Li, X., 2019b, Flexible PH Sensor Based on A Conductive PANI Membrane for PH Monitoring, *RSC advances*, 10(1), 21–28.

Ma, N., Song, Y. & Zhang, L., 2025, Preparation of A Flexible Glucose Electrochemical Sensor And Its Detection In Elderly Diabetic Patients, *Molecular & Cellular Biomechanics*, 22(5), 1453.

Maciel, C.C., de Lima, L.F., Ferreira, A.L., de Araujo, W.R. & Ferreira, M., 2022, Development of A Flexible And Disposable Electrochemical Sensor Based on Poly (Butylene Adipate-Co-Terephthalate) And Graphite for Hydroquinone Sensing, *Sensors and Actuators Reports*, 4.

Mahinnezhad, S., Izquierdo, R. & Shih, A., 2023, Fully Printed pH Sensor based on Polyaniline/Graphite Nanocomposites, *Journal of The Electrochemical Society*, 170(2), 027501.

Manjakkal, L., Dervin, S. & Dahiya, R., 2020, Flexible Potentiometric PH Sensors for Wearable Systems, *RSC Advances*, 10(15), 8594–8617.

Mokobi, F., 2024, *Scanning Electron Microscope (SEM): Principle, Parts, Uses - Microbe Notes*, (https://microbenotes.com/scanning-electron-microscope-sem/).

Mostafaei, A. & Zolriasatein, A., 2012, Synthesis and Characterization of Conducting Polyaniline Nanocomposites Containing ZnO Nanorods, *Progress in Natural Science: Materials International*, 22(4), 273–280.

Mücke, B.E.D., Rossignatti, B.C., Abegão, L.M.G., Barbosa, M.S. & Mello, H.J.N.P.D., 2024, Optimized Drop-Casted Polyaniline Thin Films for High-Sensitivity Electrochemical and Optical pH Sensors, *Polymers*, 16(19).

Nasir, S., Hussein, M.Z., Zainal, Z., Yusof, N.A., Mohd Zobir, S.A. & Alibe, I.M., 2019, Potential Valorization of By-Product Materials from Oil Palm: A Review of Alternative And Sustainable Carbon Sources for Carbon-Based Nanomaterials Synthesispotential Valorization of By-Product Materials from Oil Palm: A Review of Alternative And Sustainable Carbon Sources for Carbon-Based Nanomaterials Synthesis, *BioResources*, 14(1), 2352–2388.

Nayak, R., Shetty, P., M, S., Rao, A. & Rao, K.M., 2022, formulation of New Screen Printable PANI And PANI/Graphite Based Inks: Printing And Characterization of Flexible Thermoelectric Generators, *Energy*, 238.

Nguyen Kim, H., Nguyen Thi, N., Nguyen Van, T., Le Khanh, T., Nguyen Anh, T., Nguyen Minh, N. & Nguyen Xuan, V., 2025, Electrochemical Sensor for α-amylase Determination Using Porous Graphene on A Flexible Substrate, *Vietnam Journal of Food Control*, 8(3), 235–242.

Nota, G., Cimmino, W., Singh, S., Darwish, I.A., La Rocca, C., Carbone, F., Matarese, G. & Cinti, S., 2025, A Portable And Ecological Paper-Based Device for Glucose Monitoring in Peripheral Blood Mononuclear Cell Lysates, *Analytical Methods*, 17(12), 2529–2535.

Ogazi, A.C., Otunniyi, I.O. & Mauchline, D.A., 2025, Novel Preparation And Characterization of PA12/DMAc Microspheres for Selective Laser Sintering, *Polymer Engineering and Science*, 65(7), 3463–3476.

Oh, S.Y., Hong, S.Y., Jeong, Y.R., Yun, J., Park, H., Jin, S.W., Lee, G., Oh, J.H., Lee, H., Lee, S.S. & Ha, J.S., 2018, Skin-Attachable, Stretchable Electrochemical Sweat Sensor for Glucose and pH Detection, *ACS applied materials & interfaces*, 10(16), 13729–13740.

Orzari, L.O., Cristina de Freitas, R., Aparecida de Araujo Andreotti, I., Gatti, A. & Janegitz, B.C., 2019, A Novel Disposable Self-Adhesive Inked Paper Device for Electrochemical Sensing of Dopamine And Serotonin Neurotransmitters And Biosensing of Glucose, *Biosensors and Bioelectronics*, 138, 111310.

Park, H.J., Yoon, J.H., Lee, K.G. & Choi, B.G., 2019, Potentiometric Performance of Flexible PH Sensor Based on Polyaniline Nanofiber Arrays, *Nano Convergence*, 6(1), 1–7.

Pattan-Siddappa, G., Elugoke, S.E., Erkmen, C., Kim, S.Y. & Ebenso, E.E., 2025, Flexible Carbon Cloth Electrode: Pioneering The Future of Electrochemical Sensing Devices, *Advanced Composites and Hybrid Materials*, 8(3).

Piro, L., Lamanna, L., Guido, F., Balena, A., Mariello, M., Rizzi, F. & De Vittorio, M., 2021, Flexible Saw Microfluidic Devices As Wearable PH Sensors Based on ZNO Nanoparticles, *Nanomaterials*, 11(6).

Pradeep, S. & Saravanan, K.G., 2025, Study on Effect of Graphite Electrode on Accuracy of Hole Using Electrochemical Machining, *Bulletin of the Chemical Society of Ethiopia*, 39(5), 1019–1028.

Pradela-Filho, L.A., Andreotti, I.A.A., Carvalho, J.H.S., Araújo, D.A.G., Orzari, L.O., Gatti, A., Takeuchi, R.M., Santos, A.L. & Janegitz, B.C., 2020, Glass Varnish-Based Carbon Conductive Ink: A New Way to Produce Disposable Electrochemical Sensors, *Sensors and Actuators B: Chemical*, 305, 127433.

Rahimi, R., Ochoa, M., Tamayol, A., Khalili, S., Khademhosseini, A. & Ziaie, B., 2017, Highly Stretchable Potentiometric PH Sensor Fabricated Via Laser

Carbonization and Machining of Carbon−Polyaniline Composite, *ACS Applied Materials and Interfaces*, 9(10), 9015–9023.

Rahman, H.A., Rafi, M., Putra, B.R. & Wahyuni, W.T., 2023, Electrochemical Sensors Based on A Composite of Electrochemically Reduced Graphene Oxide and PEDOT:PSS for Hydrazine Detection, *ACS Omega*, 8, 3258–3269.

Rexhepi, F., Blazhekovikj–Dimovska, D., Hyseni, B. & Gashi, A., 2025, Rapid and Non-Destructive Ethanol Quantification In Beer Using FTIR-ATR Spectroscopy and PLSR Modeling, *European Food Research and Technology*, 252(1), 1–15.

Seo, C.U., Yoon, Y., Kim, D.H., Choi, S.Y., Park, W.K., Yoo, J.S., Baek, B., Kwon, S. Bin, Yang, C.M., Song, Y.H., Yoon, D.H. & Yang, W.S., 2018, Fabrication of Polyaniline–Carbon Nano Composite for Application In Sensitive Flexible Acid Sensor, *Journal of Industrial and Engineering Chemistry*, 64, 97–101.

Setiabudi, A., Hardian, R. & Mudzakir, A., 2012, *Karakterisasi Material Prinsip Dan Aplikasinya Dalam Penelitian Kimia*. Bandung.

Shi, L., Wang, X., Lu, L., Yang, X. & Wu, X., 2009, Preparation of Tio2/Polyaniline Nanocomposite for A Lyotropic Liquid Crystalline Solution, *Synthetic Metals*, 159(23–24), 2525–2529.

Sun, L., Wang, J. & Bonaccurso, E., 2013, Conductivity of Individual Particles Measured By A Microscopic Four-Point-Probe Method, *Scientific Reports*, 3.

Sun, W., Ma, Y., Zhang, R., Zhang, G., Tan, J. & Zhu, X., 2025, Design and Synthesis of Epoxidized Hemicellulose Polyether for Viscose Fiber Waste As Efficient Plasticizer for Ethyl Cellulose, *ACS Applied Polymer Materials*, 7, 15877–15885.

Taylor, J.R., 1997, *An Introduction to Error Analysis: The Study of Uncertainties in Physical Measurements,* Edisi kedua, Sausalito, CA: University Science Books.

Verma, R., Kumar, S. & Dey, R., 2025, Deciphering The Specific Intermolecular Interactions for N, N-Dimethylacetamide With Water At Varying Temperatures Employing Thermophysical and FTIR Analysis, *Journal of Molecular Liquids*, 439(29), 128826.

Wang, J., Yi, M., Shen, Z., Liu, L., Zhang, X. & Ma, S., 2019, Enhanced Thermal and Mechanical Properties of Poly (Vinylidene Fluoride) Nanocomposites Reinforced By Liquid-Exfoliated Graphene, *Journal of Macromolecular Science, Part A: Pure and Applied Chemistry*, 56(7), 733–740.

Wang, J., Zhang, J., Gu, J., Chen, C., Xu, Y. & Zhang, X., 2024, Plate-Type Solid-State Ag/Agcl Reference Electrode Modified With Kcl Agar-PVA and PDMS Composites, *IEEE Sensors Journal*, 24(19), 29659–29668.

Wang, R., Guo, H., Ma, Y., Yuan, Z. & Cai, Y., 2025, High-Performance Pressure Sensor Based on Flexible Paper With Composite Carbon Ink/Carbon Nanotubes, *Physica Status Solidi (A) Applications and Materials Science*, 222(10).

Webb, J. & Holgate, J.H., 2003, MICROSCOPY | Scanning Electron Microscopy, *Encyclopedia of Food Sciences and Nutrition*, 3922–3928.

Westbroek, P., 2005, Electrochemical Methods, *Analytical Electrochemistry In Textiles*, 37–69.

Williams, C.K. & Papa Lopes, P.P., 2024, Covalently Immobilized Anthraquinone on Carbon And Its Use As A Proton-Exchange Counter Electrode In Impurity Sensitive Electrochemical Measurements, *ECS Meeting Abstracts*, MA2024-01(44), 2398–2398.

Wong, L.W., Mak, S.H., Goh, B.H. & Lee, W.L., 2022, The Convergence of FTIR And Evs: Emergence Strategy for Non-Invasive Cancer Markers Discovery, *Diagnostics 2023*, 13(1), 22.

Yap, Y.W., Mahmed, N., Norizan, M.N., Abd Rahim, S.Z., Ahmad Salimi, M.N., Abdul Razak, K., Mohamad, I.S., Abdullah, M.M.A.B. & Mohamad Yunus, M.Y., 2023, Recent Advances In Synthesis of Graphite for Agricultural Bio-Waste Material: A Review, *Materials 2023*, 16(9), 3601.

Yelmai, S.W., Alom, N., Han, T.K., Saidur, R. & Jamal, M., 2023, Fabrication of High-Performance PH Sensor Based on Nio/Mxene/PANI Modified Sensing Platform, *ECS Meeting Abstracts*, 2(64), 3416–3416.

Zhang, H., Zhu, J., Yang, Y., Liu, Q., Xiong, W. & Yang, X., 2024, Inductive Paper-Based Flexible Contact Force Sensor Utilizing Natural Micro-Nanostructures of Paper: Simplicity, Economy, And Eco-Friendliness, *Micromachines*, 15(7).

Zhu, X., Sun, H., Yu, B., Xu, L., Xiao, H., Fu, Z., Gao, T. & Yang, X., 2024, A Flexible PH Sensor Based on Polyaniline@Oily Polyurethane/Polypropylene Spunbonded Nonwoven Fabric, *RSC Advances*, 14(8), 5627–5637.