

DAFTAR PUSTAKA

- Ahmadian-Kouchaksaraie, Z., Niazmand, R., & Najafi, M. N. (2016). Optimization of the subcritical water extraction of phenolic antioxidants from Crocus sativus petals of saffron industry residues: Box-Behnken design and principal component analysis. *Innovative Food Science and Emerging Technologies*, 36, 234–244. <https://doi.org/10.1016/j.ifset.2016.07.005>
- Alibekov, R. S., Mustapa Kamal, S. M., Taip, F. S., Sulaiman, A., Azimov, A. M., & Urazbayeva, K. A. (2023). Recovery of Phenolic Compounds from Jackfruit Seeds Using Subcritical Water Extraction. *Foods*, 12(17). <https://doi.org/10.3390/foods12173296>
- Amdoun, R., Khelifi, L., Khelifi-Slaoui, M., Amroune, S., Asch, M., Assaf-ducrocq, C., & Gontier, E. (2018). The Desirability Optimization Methodology; a Tool to Predict Two Antagonist Responses in Biotechnological Systems: Case of Biomass Growth and Hyoscyamine Content in Elicited Datura stramonium Hairy Roots. *Iranian Journal of Biotechnology*, 16(1), 11–19. <https://doi.org/10.21859/ijb.1339>
- Analuddin, K., Septiana, A., Nasaruddin, Sabilu, Y., & Sharma, S. (2019). Mangrove Fruit Bioprospecting: Nutritional and Antioxidant Potential as a Food Source for Coastal Communities in the Rawa Aopa Watumohai National Park, Southeast Sulawesi, Indonesia. *International Journal of Fruit Science*, 19(4), 423–436. <https://doi.org/10.1080/15538362.2018.1555507>
- Anderson, M. J., & Whitcomb, P. J. (n.d.). *RSM Simplified*. CRC Press.
- Antony, A., & Farid, M. (2022). Effect of Temperatures on Polyphenols during Extraction. *Applied Sciences*, 12(4), 2107. <https://doi.org/10.3390/app12042107>
- Aryal, S., Baniya, M. K., Danekhu, K., Kunwar, P., Gurung, R., & Koirala, N. (2019). Total Phenolic Content, Flavonoid Content and Antioxidant Potential of Wild Vegetables from Western Nepal. *Plants*, 8(4), 96. <https://doi.org/10.3390/plants8040096>
- Asih, I. A. R. A., Puspawati, N. M., Rita, W. S., & Dewi, N. L. P. D. S. (2014). Isolasi dan Identifikasi Senyawa Golongan Fenol Dari Kulit Buah TAMARILLO (*Solanum betaceum* Cav.) YANG AKTIF SEBAGAI ANTIOKSIDAN. *Seminar Nasional Sains Dan Teknologi (Senastek)*.
- Aziz, A. H. A., Yunus, M. A. C., Arsal, N. H., Lee, N. Y., Idham, Z., & Razak, A. Q. A. (2016). Optimization of supercritical carbon dioxide extraction of Piper Betel Linn leaves oil and total phenolic content. *IOP Conference Series: Materials Science and Engineering*, 162(1), 012031. <https://doi.org/10.1088/1757-899X/162/1/012031>

- Babova, O., Occhipinti, A., Capuzzo, A., & Maffei, M. E. (2016). Extraction of bilberry (*Vaccinium myrtillus*) antioxidants using supercritical/subcritical CO₂ and ethanol as co-solvent. *Journal of Supercritical Fluids*, 107, 358–363. <https://doi.org/10.1016/j.supflu.2015.09.029>
- Baliyan, S., Mukherjee, R., Priyadarshini, A., Vibhuti, A., Gupta, A., Pandey, R. P., & Chang, C.-M. (2022). Determination of Antioxidants by DPPH Radical Scavenging Activity and Quantitative Phytochemical Analysis of *Ficus religiosa*. *Molecules*, 27(4), 1326. <https://doi.org/10.3390/molecules27041326>
- Baltacıoğlu, H., Baltacıoğlu, C., Okur, I., Tanrıvermiş, A., & Yalıç, M. (2021). Optimization of microwave-assisted extraction of phenolic compounds from tomato: Characterization by FTIR and HPLC and comparison with conventional solvent extraction. *Vibrational Spectroscopy*, 113, 103204. <https://doi.org/10.1016/j.vibspec.2020.103204>
- Bezerra, M. A., Santelli, R. E., Oliveira, E. P., Villar, L. S., & Escaleira, L. A. (2008). Response surface methodology (RSM) as a tool for optimization in analytical chemistry. *Talanta*, 76(5), 965–977. <https://doi.org/10.1016/j.talanta.2008.05.019>
- Bhawsar, J., Jain, P. K., Soni, A., & Jain, P. (2016). Phytochemical analysis of *Mentha spicata* plant extract using UV-VIS, FTIR and GC/MS technique. Available Online Www.Jocpr.Com Journal of Chemical and Pharmaceutical Research, 8(2), 1–6. www.jocpr.com
- Breig, S. J. M., & Luti, K. J. K. (2021). Response surface methodology: A review on its applications and challenges in microbial cultures. *Materials Today: Proceedings*, 42, 2277–2284. <https://doi.org/10.1016/j.matpr.2020.12.316>
- Burboa-Charis, V. A., Moreno-Román, E. J., Contreras, J. A. V., & García-Gómez, C. (2019). Simultaneous removal of Cd²⁺ and Zn²⁺ from aqueous solution using an upflow Al-electrocoagulation reactor: optimization by response surface methodology. *Water Science and Technology*, 79(7), 1297–1308. <https://doi.org/10.2166/wst.2019.123>
- Campardelli, R., Baldino, L., & Reverchon, E. (2015). Supercritical fluids applications in nanomedicine. *The Journal of Supercritical Fluids*, 101, 193–214. <https://doi.org/10.1016/j.supflu.2015.01.030>
- Cano, R., Bermúdez, V., Galban, N., Garrido, B., Santeliz, R., Gotera, M. P., Duran, P., Boscan, A., Carbonell-Zabaleta, A.-K., Durán-Agüero, S., Rojas-Gómez, D., González-Casanova, J., Díaz-Vásquez, W., Chacín, M., & Angarita Dávila, L. (2024). Dietary Polyphenols and Gut Microbiota Cross-Talk: Molecular and Therapeutic Perspectives for Cardiometabolic Disease: A Narrative Review. *International Journal of Molecular Sciences*, 25(16), 9118. <https://doi.org/10.3390/ijms25169118>

- Chandra, S. (2019). Fourier transform infrared (Ft-Ir) spectroscopic analysis of *Nicotiana plumbaginifolia* (Solanaceae). *Journal of Medicinal Plants Studies*, 7(1), 82–85.
- Chelladurai, S. J. S., K., M., Ray, A. P., Upadhyaya, M., Narasimharaj, V., & S., G. (2021). Optimization of process parameters using response surface methodology: A review. *Materials Today: Proceedings*, 37, 1301–1304. <https://doi.org/10.1016/j.matpr.2020.06.466>
- Chen, P.-Y., Chen, R.-B., Chen, Y.-S., & Wong, W. K. (2023). Numerical Methods for Finding A-optimal Designs Analytically. *Econometrics and Statistics*, 28, 155–162. <https://doi.org/10.1016/j.ecosta.2022.09.005>
- Chen, X., Li, Z., Smith, S. A., Chen, M., Liu, H., Zhang, J., Tang, L., Li, J., Liu, Q., & Wu, X. (2022). Optimization of Supercritical CO₂ Extraction of *Moringa oleifera* Seed Oil Using Response Surface Methodological Approach and Its Antioxidant Activity. *Frontiers in Nutrition*, 8. <https://doi.org/10.3389/fnut.2021.829146>
- Cheng, Y., Xue, F., Yu, S., Du, S., & Yang, Y. (2021). Subcritical water extraction of natural products. In *Molecules* (Vol. 26, Issue 13). MDPI AG. <https://doi.org/10.3390/molecules26134004>
- Cvetanović, A., Švarc-Gajić, J., Gašić, U., Tešić, Ž., Zengin, G., Zeković, Z., & Durović, S. (2017). Isolation of apigenin from subcritical water extracts: Optimization of the process. *The Journal of Supercritical Fluids*, 120, 32–42. <https://doi.org/10.1016/j.supflu.2016.10.012>
- Da Porto, C., & Natolino, A. (2017). Supercritical fluid extraction of polyphenols from grape seed (*Vitis vinifera*): Study on process variables and kinetics. *Journal of Supercritical Fluids*, 130, 239–245. <https://doi.org/10.1016/j.supflu.2017.02.013>
- da Silva, R. P. F. F., Rocha-Santos, T. A. P., & Duarte, A. C. (2016). Supercritical fluid extraction of bioactive compounds. In *TrAC - Trends in Analytical Chemistry* (Vol. 76, pp. 40–51). Elsevier B.V. <https://doi.org/10.1016/j.trac.2015.11.013>
- Damayanti, A. A., Trisnawati, N. L. P., & Suyanto, H. (2021). Identifikasi Bilangan Gelombang Daun Sirih (*Piper sp.*) Menggunakan Metode Spektroskopi Fourier Transform Infrared (FTIR) dan Principal Component Analysis (PCA). *Buletin Fisika*, 22(2), 60–66.
- Dent, M., Dragovic-Uzelac, V., Penic, M., Brncic, M., Bosiljkov, T., & Levaj, B. (2013). The Effect of Extraction Solvents, Temperature and Time on the Composition and Mass Fraction of Polyphenols in Dalmatian Wild Sage (*Salvia officinalis* L.) Extracts. *Food Technol. Biotechnol.*, 51(1), 84–91. <https://www.researchgate.net/publication/236964212>

- Díaz-Reinoso, B., Rivas, S., Rivas, J., & Domínguez, H. (2023). Subcritical water extraction of essential oils and plant oils. *Sustainable Chemistry and Pharmacy*, 36, 101332. <https://doi.org/10.1016/j.scp.2023.101332>
- Escobar, E. L. N., da Silva, T. A., Pirich, C. L., Corazza, M. L., & Pereira Ramos, L. (2020). Supercritical Fluids: A Promising Technique for Biomass Pretreatment and Fractionation. In *Frontiers in Bioengineering and Biotechnology* (Vol. 8). Frontiers Media S.A. <https://doi.org/10.3389/fbioe.2020.00252>
- Farías-Campomanes, A. M., Rostagno, M. A., Coaquira-Quispe, J. J., & Meireles, M. A. A. (2015). Supercritical fluid extraction of polyphenols from lees: overall extraction curve, kinetic data and composition of the extracts. *Bioresources and Bioprocessing*, 2(1), 45. <https://doi.org/10.1186/s40643-015-0073-5>
- Fidayani, F., & Winarni Agustini, T. (2015). Ekstraksi Senyawa Bloaktif sebagai Antioksidan Alami Spirulina Platensis Segar dengan Pelarut yang Berbeda. *Jurnal Pengolahan Hasil Perikanan Indonesia*, 18(1), 28–37. <https://doi.org/10.17844/jppi.2015.18.1.28>
- Flieger, J., Flieger, W., Baj, J., & Maciejewski, R. (2021). Antioxidants: Classification, Natural Sources, Activity/Capacity Measurements, and Usefulness for the Synthesis of Nanoparticles. *Materials*, 14(15), 4135. <https://doi.org/10.3390/ma14154135>
- Gbashi, S., Adebo, O. A., Piater, L., Madala, N. E., & Njobeh, P. B. (2017). Subcritical Water Extraction of Biological Materials. *Separation & Purification Reviews*, 46(1), 21–34. <https://doi.org/10.1080/15422119.2016.1170035>
- Geeta, H. P., Srinivas, G., & Champawat, P. S. (2020). Supercritical Fluid Extraction of Bioactive Compounds from Bioresource: A Review. *International Journal of Current Microbiology and Applied Sciences*, 9(4), 559–566. <https://doi.org/10.20546/ijcmas.2020.904.068>
- Giacometti, J., Bursać Kovačević, D., Putnik, P., Gabrić, D., Bilušić, T., Krešić, G., Stulić, V., Barba, F. J., Chemat, F., Barbosa-Cánovas, G., & Režek Jambrak, A. (2018). Extraction of bioactive compounds and essential oils from mediterranean herbs by conventional and green innovative techniques: A review. *Food Research International*, 113, 245–262. <https://doi.org/10.1016/j.foodres.2018.06.036>
- Gong, Y., Zhang, X., He, L., Yan, Q., Yuan, F., & Gao, Y. (2015). Optimization of subcritical water extraction parameters of antioxidant polyphenols from sea buckthorn (*Hippophaë rhamnoides* L.) seed residue. *Journal of Food Science and Technology*, 52(3), 1534–1542. <https://doi.org/10.1007/s13197-013-1115-7>
- Haddadin, M. S. Y., & Haddadin, J. S. (2015). Lycopene Extraction from Tomato Pomace with Supercritical Carbon Dioxide: Effect of Pressures,

- Temperatures and CO₂ Flow Rates and Evaluation of Antioxidant Activity and Stability of Lycopene. *Pakistan Journal of Nutrition*, 14(12), 942–956. <https://doi.org/10.3923/pjn.2015.942.956>
- Hamid, Thakur, N. S., Sharma, R., Sharma, Y. P., Gupta, R. K., Rana, N., & Thakur, A. (2022). Phenolics from underutilized wild pomegranate fruit flavedo: Extraction, quantification, hierarchical clustering, antibacterial properties, HPLC, SEM analysis and FT-IR characterization. *South African Journal of Botany*, 145, 85–94. <https://doi.org/10.1016/j.sajb.2022.01.025>
- Hamilton, S. E., & Casey, D. (2016). Creation of a high spatio-temporal resolution global database of continuous mangrove forest cover for the 21st century (CGMFC-21). *Global Ecology and Biogeography*, 25(6), 729–738. <https://doi.org/10.1111/geb.12449>
- Harsojuwono, B. A., Arnata, I. W., & Puspawati, G. A. K. D. (2011). *Rancangan Percobaan : Teori, Aplikasi SPSS dan Excel*. Lintas Kata Publishing.
- Hasmida, M. N., Salleh, L. M., Nur Syukriah, A. N., Harisun, Y., Yunus, M. A. C., & Adibah, F. (2015). Total Phenolic Content and Antioxidant Activity of Quercus infectoria Galls Using Supercritical CO₂ Extraction Technique and Its Comparison with Soxhlet Extraction. *Pertanika J. Sci. & Technol*, 23(2), 287–295. <http://www.pertanika.upm.edu.my/>
- Hepi, D. A., Yulianti, N. L., & Setiyo, Y. (2021). Optimasi Suhu Pengeringan dan Ketebalan Irisan pada Proses Pengeringan Jahe Merah (*Zingiber Officinale* var. *rubrum*) dengan Response Surface Methodology (RSM). *Jurnal BETA (Biosistem Dan Teknik Pertanian)*, 9, 66–75. <http://ojs.unud.ac.id/index.php/beta>
- Husna, N. El, Noor, E., Fahma, F., & Sunarti, T. C. (2022). Teknik Ekstraksi dan Nanoenkapsulasi Komponen Bioaktif Buah Malaka: Tinjauan Literatur. *Agrointek : Jurnal Teknologi Industri Pertanian*, 16(2), 171–185. <https://doi.org/10.21107/agrointek.v16i2.12433>
- Jain, P. K., Soni, A., Jain, P., & Bhawsar, J. (2016). Phytochemical analysis of *Mentha spicata* plant extract using UV-VIS, FTIR and GC/MS technique. *Journal of Chemical and Pharmaceutical Research*, 8(2), 1–6. www.jocpr.com
- Jamaludin, R., Kim, D.-S., Salleh, L. M., & Lim, S.-B. (2021). Kinetic Study of Subcritical Water Extraction of Scopoletin, Alizarin, and Rutin from *Morinda citrifolia*. *Foods*, 10(10), 2260. <https://doi.org/10.3390/foods10102260>
- Jariyah, Kurniati, E., & Nurherdiana, S. D. (2022). Study of Pectin Extraction from Pedada Fruit and Kepok Banana Peel. *Advances in Food Science, Sustainable Agriculture and Agroindustrial Engineering*, 5(1), 40–48.
- Jariyah, Susiloningsih, E. K. B., & Nilasari, K. (2018). Glycemic Index Biscuits Formulation of Pedada Flour (*Sonneratia caseolaris*) with Tubers Starch.

- Journal of Physics: Conference Series*, 953(1).
<https://doi.org/10.1088/1742-6596/953/1/012246>
- Jariyah, Widjanarko, S. B., & Estiasih, T. (2014). Hypoglycemic effect of Pedada (*Sonneratia caseolaris*) Fruit Flour (PFF) in alloxan-induced diabetic rats. *IJPRIF*, 7(1), 31–40.
- Jariyah, Widjanarko, S. B., Yunianta, & Estiasih, T. (2015). Phytochemical and acute toxicity studies of ethanol extract from pedada (*Sonneratia caseolaris*) fruit flour (PFF). *International Journal on Advanced Science, Engineering and Information Technology*, 5(2), 95–98.
<https://doi.org/10.18517/ijaseit.5.2.485>
- Jariyah, Widjanarko, S. B., Yunianta, & Estiasih, T. (2018). Identification of Pedada Fibers by Fourier Transform Infrared Spectrophotometer (FTIR). *Advanced Science Letters*, 23(12), 12276–12278.
<https://doi.org/10.1166/asl.2017.10620>
- Joana Gil-Chávez, G., Villa, J. A., Fernando Ayala-Zavala, J., Basilio Heredia, J., Sepulveda, D., Yahia, E. M., & González-Aguilar, G. A. (2013). Technologies for Extraction and Production of Bioactive Compounds to be Used as Nutraceuticals and Food Ingredients: An Overview. *Comprehensive Reviews in Food Science and Food Safety*, 12(1), 5–23.
<https://doi.org/10.1111/1541-4337.12005>
- Kamiński, P., Gruba, M., Fekner, Z., Tyśkiewicz, K., & Kobus, Z. (2023). The Influence of Water Extraction Parameters in Subcritical Conditions and the Shape of the Reactor on the Quality of Extracts Obtained from Norway Maple (*Acer platanoides* L.). *Processes*, 11(12).
<https://doi.org/10.3390/pr11123395>
- Kerr, J., & Lide, D. (2000). *CRC handbook of chemistry and physics 1999-2000* (81st ed.). CRC Press.
- Khajenoori, M., Asl, A. H., & Eikani, M. H. (2015). Optimization of Subcritical Water Extraction of *Pimpinella anisum* Seeds. *Journal of Essential Oil Bearing Plants*, 18(6), 1310–1320. <https://doi.org/10.1080/0972060X.2013.831564>
- Khan, S. A., Khan, S. B., Khan, L. U., Farooq, A., Akhtar, K., & Asiri, A. M. (2018). Fourier Transform Infrared Spectroscopy: Fundamentals and Application in Functional Groups and Nanomaterials Characterization. In *Handbook of Materials Characterization* (pp. 317–344). Springer International Publishing. https://doi.org/10.1007/978-3-319-92955-2_9
- Khaw, K. Y., Parat, M. O., Shaw, P. N., & Falconer, J. R. (2017). Solvent supercritical fluid technologies to extract bioactive compounds from natural sources: A review. In *Molecules* (Vol. 22, Issue 7). MDPI AG. <https://doi.org/10.3390/molecules22071186>
- Ko, M.-J., Nam, H.-H., & Chung, M.-S. (2020). Subcritical water extraction of bioactive compounds from *Orostachys japonicus* A. Berger

- (Crassulaceae). *Scientific Reports*, 10(1), 10890. <https://doi.org/10.1038/s41598-020-67508-2>
- Koraqi, H., Petkoska, A. T., Khalid, W., Sehrish, A., Ambreen, S., & Lorenzo, J. M. (2023). Optimization of the Extraction Conditions of Antioxidant Phenolic Compounds from Strawberry Fruits (*Fragaria x ananassa* Duch.) Using Response Surface Methodology. *Food Analytical Methods*, 16(6), 1030–1042. <https://doi.org/10.1007/s12161-023-02469-6>
- Kumar, R., & Reji, M. (2023). Response surface methodology (RSM): An overview to analyze multivariate data. *Indian Journal of Microbiology Research*, 9(4), 241–248. <https://doi.org/10.18231/j.ijmr.2022.042>
- Lakshmi, CH. N. D. M., Raju, A. D. P., Madhavi, T., & Sushma, N. J. (2014). Identification of Bioactive Compounds by FTIR Analysis and In Vitro Antioxidant Activity of *Clitoria Ternatea* Leaf and Flower Extract. *Indo American Journal of Pharmaceutical Research*, 4(9), 3894–3903.
- Lang, Y., Gao, N., Zang, Z., Meng, X., Lin, Y., Yang, S., Yang, Y., Jin, Z., & Li, B. (2024). Classification and antioxidant assays of polyphenols: a review. *Journal of Future Foods*, 4(3), 193–204. <https://doi.org/10.1016/j.jfutfo.2023.07.002>
- Li, B., Akram, M., Al-Zuhair, S., Elnajjar, E., & Munir, M. T. (2020). Subcritical water extraction of phenolics, antioxidants and dietary fibres from waste date pits. *Journal of Environmental Chemical Engineering*, 8(6). <https://doi.org/10.1016/j.jece.2020.104490>
- Li, Q., Li, J., Li, H., Xu, R., Yuan, Y., & Cao, J. (2019). Physicochemical properties and functional bioactivities of different bonding state polysaccharides extracted from tomato fruit. *Carbohydrate Polymers*, 219, 181–190. <https://doi.org/10.1016/j.carbpol.2019.05.020>
- Limmatvapirat, C., Charoenteeraboon, J., Wetwitayaklung, P., Sukonpan, C., & Phaechamud, T. (2011). Stability and antioxidant activity of polyphenols in methanolic extracts of *Sonneratia Caseolaris* seeds. *Advanced Materials Research*, 146–147, 1062–1065. <https://doi.org/10.4028/www.scientific.net/AMR.146-147.1062>
- Lin, Y., Shi, R., Wang, X., & Shen, H.-M. (2008). Luteolin, a Flavonoid with Potential for Cancer Prevention and Therapy. *Current Cancer Drug Targets*, 8(7), 634–646. <https://doi.org/10.2174/156800908786241050>
- Liu, J., Wang, T., Huang, B., Zhuang, Y., Hu, Y., & Fei, P. (2021). Pectin modified with phenolic acids: Evaluation of their emulsification properties, antioxidation activities, and antibacterial activities. *International Journal of Biological Macromolecules*, 174, 485–493. <https://doi.org/10.1016/j.ijbiomac.2021.01.190>
- Losada-Barreiro, S., & Bravo-Díaz, C. (2017). Free radicals and polyphenols: The redox chemistry of neurodegenerative diseases. *European Journal of*

- Medicinal Chemistry*, 133, 379–402.
<https://doi.org/10.1016/j.ejmech.2017.03.061>
- Mallek-Ayadi, S., Bahloul, N., & Kechaou, N. (2018). Chemical composition and bioactive compounds of *Cucumis melo* L. seeds: Potential source for new trends of plant oils. *Process Safety and Environmental Protection*, 113, 68–77. <https://doi.org/10.1016/j.psep.2017.09.016>
- Manalu, R. D. E., Salamah, E., Retiaty, F., & Kurniawati, N. (2013). Kandungan Zat Gizi Makro dan Vitamin Produk Buah Pedada (*Sonneratia Caseolaris*). *Penelitian Gizi Dan Makanan*, 36(2), 135–140.
- Marathe, S. J., Jadhav, S. B., Bankar, S. B., Kumari Dubey, K., & Singhal, R. S. (2019). Improvements in the extraction of bioactive compounds by enzymes. *Current Opinion in Food Science*, 25, 62–72. <https://doi.org/10.1016/j.cofs.2019.02.009>
- Martins, G. R., Monteiro, A. F., Lopes do Amaral, F. R., & Ana da Silva, A. S. (2021). A validated Folin-Ciocalteu method for total phenolics quantification of condensed tannin-rich acai' (*Euterpe oleracea* Mart.) seeds extract. *Journal Food Science and Technology*, 58(12), 4693–4702.
- McKelvey, F., & Neves, J. (2021). Introduction: optimization and its discontents. *Review of Communication*, 21(2), 95–112. <https://doi.org/10.1080/15358593.2021.1936143>
- Mehmood, T., Kousar, K., Arshad, H., Iqbal, M., & Zeshan. (2021). Effect of Solvents on Extraction of Bioactive Substances from CITRULLUS COLOCYNTHIS and Their Antioxidant, Antimicrobial and Antiglycation Activities. *Pharmaceutical Chemistry Journal*, 55(3), 275–283. <https://doi.org/10.1007/s11094-021-02411-2>
- Mercado-Mercado, G., de la Rosa, L. A., & Alvarez-Parrilla, E. (2020). Effect of pectin on the interactions among phenolic compounds determined by antioxidant capacity. *Journal of Molecular Structure*, 1199, 126967. <https://doi.org/10.1016/j.molstruc.2019.126967>
- Meriatna, Afriani, R., Maulinda, L., Suryati, & Zulmiardi. (2021). Optimasi Adsorpsi Ion Pb²⁺ Menggunakan Karbon Aktif Sekam Padi Pada Fixed Bed Column Dengan Pendekatan RSM (Response Surface Methodology). *Jurnal Teknologi Kimia Unimal*, 10(1), 100–110.
- Mikucka, W., Zielinska, M., Bulkowska, K., & Witonska, I. (2022). Subcritical water extraction of bioactive phenolic compounds from distillery stillage. *Journal of Environmental Management*, 318. <https://doi.org/10.1016/j.jenvman.2022.115548>
- Mnayer, D., Fabiano-Tixier, A.-S., Petitcolas, E., Ruiz, K., Hamieh, T., & Chemat, F. (2017). Extraction of green absolute from thyme using ultrasound and sunflower oil. *Resource-Efficient Technologies*, 3(1), 12–21. <https://doi.org/10.1016/j.refft.2017.01.007>

- Mohd Amir, S. N. K., Mad Nordin, M. F., Shamel, K., Mohamad Abdul Wahab, I., & Abdul Hamid, M. (2021). Evaluation Of Parameters For Subcritical Water Extraction Of Zingiber zerumbet Using Fractional Factorial Design. *Jurnal Teknologi*, 83(2), 143–150. <https://doi.org/10.11113/jurnalteknologi.v83.14545>
- Moncada, J., Tamayo, J. A., & Cardona, C. A. (2016). Techno-economic and environmental assessment of essential oil extraction from Oregano (*Origanum vulgare*) and Rosemary (*Rosmarinus officinalis*) in Colombia. *Journal of Cleaner Production*, 112, 172–181. <https://doi.org/10.1016/j.jclepro.2015.09.067>
- Montgomery, D. C. (2005). *Introduction to Statistical Quality Control* (4th Edition). John Wiley & Sons, Inc.
- Montgomery, D. C. (2012). *Design and Analysis of Experiments* (8th Edition).
- Mulyadi, A. H., Ekasari, D., & Hasanah, Y. R. (2023). Optimasi Ekstraksi Minyak Biji Pepaya Menggunakan Response Surface Methodology (RSM). *JRST (Jurnal Riset Sains Dan Teknologi)*, 7(2), 127. <https://doi.org/10.30595/jrst.v7i2.15295>
- Munir, M. T., Kheirkhah, H., Baroutian, S., Quek, S. Y., & Young, B. R. (2018). Subcritical water extraction of bioactive compounds from waste onion skin. *Journal of Cleaner Production*, 183, 487–494. <https://doi.org/10.1016/j.jclepro.2018.02.166>
- Munir, M. T., Li, B., Boiarkina, I., Baroutian, S., Yu, W., & Young, B. R. (2017). Phosphate recovery from hydrothermally treated sewage sludge using struvite precipitation. *Bioresource Technology*, 239, 171–179. <https://doi.org/10.1016/j.biortech.2017.04.129>
- Munteanu, I. G., & Apetrei, C. (2021). Analytical Methods Used in Determining Antioxidant Activity: A Review. *International Journal of Molecular Sciences*, 22(7), 3380. <https://doi.org/10.3390/ijms22073380>
- Musci, M., & Yao, S. (2017). Optimization and validation of Folin–Ciocalteu method for the determination of total polyphenol content of Pu-erh tea. *International Journal of Food Sciences and Nutrition*, 68(8), 913–918. <https://doi.org/10.1080/09637486.2017.1311844>
- Muzolf-Panek, M., & Stuper-Szablewska, K. (2021). Comprehensive study on the antioxidant capacity and phenolic profiles of black seed and other spices and herbs: effect of solvent and time of extraction. *Journal of Food Measurement and Characterization*, 15(5), 4561–4574. <https://doi.org/10.1007/s11694-021-01028-z>
- Nandiyanto, A. B. D., Oktiani, R., & Ragadhita, R. (2019). How to Read and Interpret FTIR Spectroscopic of Organic Material. *Indonesian Journal of Science and Technology*, 4(1), 97. <https://doi.org/10.17509/ijost.v4i1.15806>

- Nandiyanto, A. B. D., Ragadhita, R., & Fiandini, M. (2022). Interpretation of Fourier Transform Infrared Spectra (FTIR): A Practical Approach in the Polymer/Plastic Thermal Decomposition. *Indonesian Journal of Science and Technology*, 8(1), 113–126. <https://doi.org/10.17509/ijost.v8i1.53297>
- Niazmand, R., Shahidi Noghabi, M., & Niazmand, A. (2021). Optimization of subcritical water extraction of phenolic compounds from *Ziziphus jujuba* using response surface methodology: evaluation of thermal stability and antioxidant activity. *Chemical and Biological Technologies in Agriculture*, 8(1), 6. <https://doi.org/10.1186/s40538-020-00203-6>
- Nurhaeni, Atjiang, N. A., Hardi, J., Diharnaini, & Khairunnisa. (2018). Ekstraksi dan Karakterisasi Pektin Dari Kulit dan Dami Buah Cempedak (*Artocarpus chempeden*). *KOVALEN*, 4(3), 304–315.
- Oktaviani, I. I., & Ulilalbab, A. (2020). Pengaruh Penambahan Tepung Biji Alpukat (*Persea americana Mill*) Dalam Pembuatan Roti Tawar Terhadap Kadar Air dan Daya Terima. *Jurnal Teknologi Pangan Dan Kesehatan (The Journal of Food Technology and Health)*, 2(1), 44–52. <https://doi.org/10.36441/jtepakes.v2i1.499>
- Okur, İ., Baltacıoğlu, C., Açıcam, E., Baltacıoğlu, H., & Alpas, H. (2019). Evaluation of the Effect of Different Extraction Techniques on Sour Cherry Pomace Phenolic Content and Antioxidant Activity and Determination of Phenolic Compounds by FTIR and HPLC. *Waste and Biomass Valorization*, 10(12), 3545–3555. <https://doi.org/10.1007/s12649-019-00771-1>
- Pangestuti, R., Siahaan, E. A., Untari, F., & Chun, B. S. (2020). Biological activities of Indonesian mangroves obtained by subcritical water extraction. *IOP Conference Series: Earth and Environmental Science*, 441(1). <https://doi.org/10.1088/1755-1315/441/1/012101>
- Pavlić, B., Vidović, S., Vladić, J., Radosavljević, R., Cindrić, M., & Zeković, Z. (2016). Subcritical water extraction of sage (*Salvia officinalis L.*) by-products—Process optimization by response surface methodology. *The Journal of Supercritical Fluids*, 116, 36–45. <https://doi.org/10.1016/j.supflu.2016.04.005>
- Picot-Allain, M. C. N., Ramasawmy, B., & Emmambux, M. N. (2022). Extraction, Characterisation, and Application of Pectin from Tropical and Sub-Tropical Fruits: A Review. *Food Reviews International*, 38(3), 282–312. <https://doi.org/10.1080/87559129.2020.1733008>
- Pinto, D., Vieira, E. F., Peixoto, A. F., Freire, C., Freitas, V., Costa, P., Delerue-Matos, C., & Rodrigues, F. (2021). Optimizing the extraction of phenolic antioxidants from chestnut shells by subcritical water extraction using response surface methodology. *Food Chemistry*, 334, 127521. <https://doi.org/10.1016/j.foodchem.2020.127521>

- Prakash, M., Basavaraj, B. V., & Chidambara Murthy, K. N. (2019). Biological functions of epicatechin: Plant cell to human cell health. *Journal of Functional Foods*, 52, 14–24. <https://doi.org/10.1016/j.jff.2018.10.021>
- Putnik, P., Lorenzo, J., Barba, F., Roohinejad, S., Režek Jambrak, A., Granato, D., Montesano, D., & Bursać Kovačević, D. (2018). Novel Food Processing and Extraction Technologies of High-Added Value Compounds from Plant Materials. *Foods*, 7(7), 106. <https://doi.org/10.3390/foods7070106>
- Putra, A. Y. T., Susiloningsih, E. K. B., & Susanti, M. A. (2020). Physicochemical and Sensory Properties of Pedada Fruit (*Sonneratia caseolaris*) Bar. *Journal of Physics: Conference Series*, 1569(3). <https://doi.org/10.1088/1742-6596/1569/3/032013>
- Rahim, A. C., & Abu Bakar, M. F. (2018). Pidada—*Sonneratia caseolaris*. In *Exotic Fruits Reference Guide* (pp. 327–332). Elsevier. <https://doi.org/10.1016/B978-0-12-803138-4.00043-5>
- Raj, N. D., & Singh, D. (2022). A critical appraisal on ferulic acid: Biological profile, biopharmaceutical challenges and nano formulations. *Health Sciences Review*, 5, 100063. <https://doi.org/10.1016/j.hsr.2022.100063>
- Raj, S. A. A., Rubila, S., Jayabalan, R., & Ranganathan, T. V. (2012). A review on pectin: chemistry due to general properties of pectin and its pharmaceutical uses. *Open Access Scientific Reports*, 1(12), 1–4. <https://doi.org/10.4172/scientificreports.550>
- Ramaraj, R., & Unpaprom, Y. (2019). Optimization of pretreatment condition for ethanol production from *Cyperus difformis* by response surface methodology. *3 Biotech*, 9(6), 218. <https://doi.org/10.1007/s13205-019-1754-0>
- Rauf, S. H., Isa, I., & Musa, W. J. A. (2021). Ekstraksi Senyawa Fenolik Dari Biji Pepaya (*Carica Papaya Linn*). *Jurnal Normalita*, 9(3), 553–561.
- Rofie, B. D. M., & Salleh, L. M. (2021). Thermodynamic Model of *Swietenia Macrophylla* Seeds Using Subcritical Water Extraction. *Jurnal Teknologi* . www.jurnalteknologi.utm.my
- Vyawaharkar, R. Y., & Mangaonkar, S. S. (2016). Extraction of Flavonoids From *Buchania lanza* Spreng. Seeds By Supercritical Fluid Extraction and Determination of Their Antioxidant Activity. *International Journal of Pharmacy and Pharmaceutical Sciences*, 8(1), 353–358.
- Sabater, C., Molina-Tijeras, J. A., Vezza, T., Corzo, N., Montilla, A., & Utrilla, P. (2019). Intestinal anti-inflammatory effects of artichoke pectin and modified pectin fractions in the dextran sulfate sodium model of mice colitis. Artificial neural network modelling of inflammatory markers. *Food & Function*, 10(12), 7793–7805. <https://doi.org/10.1039/C9FO02221J>

- Sahoo, P., & Barman, T. Kr. (2012). ANN modelling of fractal dimension in machining. In *Mechatronics and Manufacturing Engineering* (pp. 159–226). Elsevier. <https://doi.org/10.1533/9780857095893.159>
- Sahribulan. (2022). Identifikasi Gugus Fungsi Dari Senyawa Metabolit Sekunder Ekstrak Etanol Daun Kayu Jawa. *Jurnal Pendidikan Biologi*, 5(2), 161–168.
- Salleh, L. M., Jamaludin, R., Yunus, M. A. C., Yakub, H., & Aziz, A. A. (2014). Antioxidant Activity and Total Phenolic Contents in Methanol Extracts from Swietenia Mahagoni and Andrographis Paniculata. *Jurnal Teknologi*, 69(4), 51–53. www.jurnalteknologi.utm.my
- Salsabila, D. I., Machfidho, A., Salsabila, R. A., Anggraini, A. V., Prasetyo, A. D., Rahmatullah, A. A., Ramadhan, N. H., Shobiro, N. S., Maharani, D. R., & Husna, A. 'Ishmatul. (2022). Pengolahan Buah Mangrove Pedada (Sonneratia caseolaris) Sebagai Sirup di Kawasan Sukorejo, Gresik. *Sewagati*, 7(1). <https://doi.org/10.12962/j26139960.v7i1.445>
- Sanjeeva, K. K. A., Herath, K. H. I. N. M., Kim, Y.-S., Jeon, Y.-J., & Kim, S.-K. (2023). Enzyme-assisted extraction of bioactive compounds from seaweeds and microalgae. *TrAC Trends in Analytical Chemistry*, 167, 117266. <https://doi.org/10.1016/j.trac.2023.117266>
- Sari, N. W., Fajri, M. Y., & Anjas, W. (2018). Analisis Fitokimia dan Gugus Fungsi dari Ekstrak Etanol Pisang Goroho Merah (*Musa Acuminata* (L.)). *IJOB*, 2(1), 30–34.
- Shantabi, L., Jagetia, G., & Singh Thaodem, T. (2017). Antioxidant properties of croton caudatus leaf extract in vitro. *Translational Medicine and Biotechnology*, 02(06). <https://www.researchgate.net/publication/304792401>
- Shi, F., Jiang, Z. B., Xu, J., Bai, X. P., Liang, Q. Y., & Fu, Z. H. (2022). Optimized extraction of phenolic antioxidants from red pitaya (*Hylocereus polyrhizus*) seeds by subcritical water extraction using response surface methodology. *Journal of Food Measurement and Characterization*, 16(3), 2240–2258. <https://doi.org/10.1007/s11694-021-01212-1>
- Shin, S.-B., Lee, J.-K., & Ko, M.-J. (2023). Enhanced extraction of bioactive compounds from propolis (*Apis mellifera* L.) using subcritical water. *Scientific Reports*, 13(1), 15038. <https://doi.org/10.1038/s41598-023-42418-1>
- Singh, P. K., Singh, J., Medhi, T., & Kumar, A. (2022). Phytochemical Screening, Quantification, FT-IR Analysis, and In Silico Characterization of Potential Bio-active Compounds Identified in HR-LC/MS Analysis of the Polyherbal Formulation from Northeast India. *ACS Omega*, 7(37), 33067–33078. <https://doi.org/10.1021/acsomega.2c03117>

- Singh, P. P., & Saldaña, M. D. A. (2011). Subcritical water extraction of phenolic compounds from potato peel. *Food Research International*, 44(8), 2452–2458. <https://doi.org/10.1016/j.foodres.2011.02.006>
- Sławińska, N., & Olas, B. (2023). Selected Seeds as Sources of Bioactive Compounds with Diverse Biological Activities. In *Nutrients* (Vol. 15, Issue 1). MDPI. <https://doi.org/10.3390/nu15010187>
- Sulaiman, I. S. C., Basri, M., Fard Masoumi, H. R., Chee, W. J., Ashari, S. E., & Ismail, M. (2017). Effects of temperature, time, and solvent ratio on the extraction of phenolic compounds and the anti-radical activity of Clinacanthus nutans Lindau leaves by response surface methodology. *Chemistry Central Journal*, 11(1), 54. <https://doi.org/10.1186/s13065-017-0285-1>
- Sunardi. (2023). Analisis Gugus Fungsi dan Penentuan Kadar Total Fenol Ekstrak Kulit Buah Naga Merah dan Putih. *Jurnal Redoks: Jurnal Pendidikan Kimia Dan Ilmu Kimia*, 6(1), 8–18.
- Thummajitsakul, S., Samaikam, S., Tacha, S., & Silprasit, K. (2020). Study on FTIR spectroscopy, total phenolic content, antioxidant activity and anti-amylase activity of extracts and different tea forms of Garcinia schomburgkiana leaves. *LWT*, 134, 110005. <https://doi.org/10.1016/j.lwt.2020.110005>
- Utami, S., Widiantoro, A., & Jayuska, A. (2016). *Karakterisasi Senyawa Fenolik Dari Fraksi Methanol Bunga Nusa Indah (Mussaenda erythrophylla)*. 6(4), 83–88.
- Uwineza, P. A., & Waśkiewicz, A. (2020). Recent Advances in Supercritical Fluid Extraction of Natural Bioactive Compounds from Natural Plant Materials. *Molecules*, 25(17), 3847. <https://doi.org/10.3390/molecules25173847>
- Vladić, J., Janković, T., Živković, J., Tomić, M., Zdunić, G., Šavikin, K., & Vidović, S. (2020). Comparative Study of Subcritical Water and Microwave-Assisted Extraction Techniques Impact on the Phenolic Compounds and 5-Hydroxymethylfurfural Content in Pomegranate Peel. *Plant Foods for Human Nutrition*, 75(4), 553–560. <https://doi.org/10.1007/s11130-020-00848-6>
- Vuolo, M. M., Lima, V. S., & Maróstica Junior, M. R. (2019). Phenolic Compounds. In *Bioactive Compounds* (pp. 33–50). Elsevier. <https://doi.org/10.1016/B978-0-12-814774-0.00002-5>
- Wahdaningsih, S., Nugraha, F., Kurniawan, H., Marselia, A., & Sari, D. N. (2022). Identifikasi Gugus Fungsi Fraksi Etil Asetat dan Fraksi n-Heksan Hylocereus polyrhizus (F.A.C.Weber) Britton & Rose. *Jurnal Pharmascience*, 9(1), 113–123.
- Wardani, A. K., Cahyono, A. B., & Martono, D. B. (2016). Analisis Metode Delineasi Bidang Tanah pada Citra Resolusi Tinggi dalam Pembuatan Kadaster Lengkap. *Jurnal Teknik ITS*, 5(2).

- Wetwitayaklung, P., Limmatvapirat, C., & Phaechamud, T. (2013). Antioxidant and Anticholinesterase Activities in Various Parts of Sonneratia caseolaris (L.). *Indian Journal of Pharmaceutical Sciences*, 75(6), 649–656.
- Witek-Krowiak, A., Chojnacka, K., Podstawczyk, D., Dawiec, A., & Bubała, K. (2014). Application of response surface methodology and artificial neural network methods in modelling and optimization of biosorption process. *Bioresource Technology*, 160, 150–160. <https://doi.org/10.1016/j.biortech.2014.01.021>
- Wongsa, P., Phatikulrungsun, P., & Prathumthong, S. (2022). FT-IR characteristics, phenolic profiles and inhibitory potential against digestive enzymes of 25 herbal infusions. *Scientific Reports*, 12(1), 6631. <https://doi.org/10.1038/s41598-022-10669-z>
- Wu, W.-Y., Dai, Y.-C., Li, N.-G., Dong, Z.-X., Gu, T., Shi, Z.-H., Xue, X., Tang, Y.-P., & Duan, J.-A. (2017). Novel multitarget-directed tacrine derivatives as potential candidates for the treatment of Alzheimer's disease. *Journal of Enzyme Inhibition and Medicinal Chemistry*, 32(1), 572–587. <https://doi.org/10.1080/14756366.2016.1210139>
- Yan, L., Cao, Y., & Zheng, G. (2017). Optimization of subcritical water extraction of phenolic antioxidants from pomegranate (*Punica granatum* L.) peel by response surface methodology. *Analytical Methods*, 9(32), 4647–4656. <https://doi.org/10.1039/C7AY01475A>
- Zaini, A. S., Putra, N. R., Idham, Z., Mohd Faizal, A. N., Che Yunus, M. A., Mamat, H., & Abdul Aziz, A. H. (2022). Comparison of Alliin Recovery from Allium sativum L. Using Soxhlet Extraction and Subcritical Water Extraction. *ChemEngineering*, 6(5), 73. <https://doi.org/10.3390/chemengineering6050073>
- Zakaria, S. M., Kamal, S. M. M., Harun, M. R., Omar, R., & Siajam, S. I. (2017). Subcritical Water Technology for Extraction of Phenolic Compounds from Chlorella sp. Microalgae and Assessment on Its Antioxidant Activity. *Molecules*, 22(7), 1105. <https://doi.org/10.3390/molecules22071105>
- Zhai, Y., Wang, T., Fu, Y., Yu, T., Ding, Y., & Nie, H. (2023). Ferulic Acid: A Review of Pharmacology, Toxicology, and Therapeutic Effects on Pulmonary Diseases. *International Journal of Molecular Sciences*, 24(9), 8011. <https://doi.org/10.3390/ijms24098011>
- Zhang, Q.-W., Lin, L.-G., & Ye, W.-C. (2018). Techniques for extraction and isolation of natural products: a comprehensive review. *Chinese Medicine*, 13(1), 20. <https://doi.org/10.1186/s13020-018-0177-x>