

REFERENCES

- Adib-Hajbaghery, M., & Mousavi, S. N. (2017). The effects of chamomile extract on sleep quality among elderly people: A clinical trial. *Complementary Therapies in Medicine*, 35(October), 109–114. <https://doi.org/10.1016/j.ctim.2017.09.010>
- Ahmad, S., Azhar, A., Tikmani, P., Rafique, H., Khan, A., Mesiya, H., & Saeed, H. (2022). A randomized clinical trial to test efficacy of chamomile and saffron for neuroprotective and anti-inflammatory responses in depressive patients. *Heliyon*, 8(10). <https://doi.org/10.1016/j.heliyon.2022.e10774>
- Allen, J. R. F., & Baker, D. A. (1980). Free tryptophan and indole-3-acetic acid levels in the leaves and vascular pathways of *Ricinus communis* L. *Planta*, 148(1), 69–74. <https://doi.org/10.1007/BF00385444>
- Amsterdam, J. D., Shults, J., Soeller, I., Mao, J. J., Rockwell, K., & Newberg, A. B. (2012). Chamomile (*Matricaria recutita*) may provide antidepressant activity in anxious, depressed humans: An exploratory study. *Alternative Therapies in Health and Medicine*, 18(5), 44–49.
- AOAC. (2016). Appendix F: Guidelines for Standard Method Performance Requirements. *AOAC International*.
- Arnáiz, E., Bernal, J., Martín, M. T., Nozal, M. J., Bernal, J. L., & Toribio, L. (2012). Supercritical fluid extraction of free amino acids from broccoli leaves. *Journal of Chromatography A*, 1250, 49–53. <https://doi.org/10.1016/j.chroma.2012.04.066>
- Bao, L., Bao, X., Li, P., Wang, X., & Ao, W. (2018). Chemical profiling of *Malva verticillata* L. by UPLC-Q-TOF-MSE and their antioxidant activity in vitro. *Journal of Pharmaceutical and Biomedical Analysis*, 150, 420–426. <https://doi.org/10.1016/j.jpba.2017.12.044>
- Belinska, S., Kamienieva, N., Levytska, S., & Rogalskiy, S. (2018). Determination of Amino Acid Composition of Broccoli Cabbage Protein. *EUREKA: Life Sciences*, 3(3), 25–32. <https://doi.org/10.21303/2504-5695.2018.00660>
- Bellmaine, S., Schnellbaecher, A., & Zimmer, A. (2020). Reactivity and degradation products of tryptophan in solution and proteins. *Free Radical Biology and Medicine*, 160(August), 696–718. <https://doi.org/10.1016/j.freeradbiomed.2020.09.002>
- Berger, P. D., Maurer, R. E., & Celli, G. B. (2017). Experimental design: With applications in management, engineering, and the sciences: Second edition. In *Experimental Design: With Applications in Management, Engineering and the Sciences*. <https://doi.org/10.1007/978-3-319-64583-4>
- Betz, J. M., Brown, P. N., & Roman, M. C. (2011). Accuracy, Precision, and Reliability of Chemical Measurements in Natural Products Research. *Fitoterapia*, 82(1), 44–52. <https://doi.org/10.1016/j.fitote.2010.09.011>
- Carrera, C., Ruiz-Rodríguez, A., Palma, M., & Barroso, C. G. (2015). Ultrasound-assisted extraction of amino acids from grapes. *Ultrasonics Sonochemistry*, 22, 499–505. <https://doi.org/10.1016/j.ultsonch.2014.05.021>
- Chemat, F., Rombaut, N., Sicaire, A. G., Meullemiestre, A., Fabiano-Tixier, A. S., & Abert-Vian, M. (2017). Ultrasound assisted extraction of food and natural products. Mechanisms, techniques, combinations, protocols and applications. A review. *Ultrasonics Sonochemistry*, 34, 540–560. <https://doi.org/10.1016/j.ultsonch.2016.06.035>
- Cui, F. J., Qian, L. S., Sun, W. J., Zhang, J. S., Yang, Y., Li, N., Zhuang, H. N., & Wu, D. (2018). Ultrasound-assisted extraction of polysaccharides from *Volvariella*

- volvacea: Process optimization and structural characterization. *Molecules*, 23(7). <https://doi.org/10.3390/molecules23071706>
- Currie, L. A. (1997). Detection: International update, and some emerging di-lemmas involving calibration, the blank, and multiple detection decisions. *Chemometrics and Intelligent Laboratory Systems*, 37(1), 151–181. [https://doi.org/10.1016/S0169-7439\(97\)00009-9](https://doi.org/10.1016/S0169-7439(97)00009-9)
- Diraz-Yildirim, E., Karaman, S., Kulak, M., & Ilcim, A. (2021). Tryptophan Derivatives, Phenolic Compounds and Antioxidant Potential of Some Wild Tanacetum Taxa From Turkey. *Studia Universitatis Babes-Bolyai Chemia*, 66(4), 107–122. <https://doi.org/10.24193/subbchem.2021.4.08>
- Douglas. (2017). Experimental Design. In *Mycological Research* (Vol. 106, Issue 11).
- 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(February), 100547. <https://doi.org/10.1016/j.fbio.2020.100547>
- EMA. (2006). *European Medicines Agency*. 2(November 1994), 1–15.
- Erland, L. A. E., & Saxena, P. (2019). Auxin driven indoleamine biosynthesis and the role of tryptophan as an inductive signal in *Hypericum perforatum* (L.). *PLoS ONE*, 14(10), 1–22. <https://doi.org/10.1371/journal.pone.0223878>
- Essa, M. M., Hamdan, H., Chidambaram, S. B., Al-Balushi, B., Guillemin, G. J., Ojcius, D. M., & Qoronfle, M. W. (2020). Possible role of tryptophan and melatonin in COVID-19. *International Journal of Tryptophan Research*, 13, 2020–2021. <https://doi.org/10.1177/1178646920951832>
- Fernandes, L., Casal, S., Pereira, J. A., Saraiva, J. A., & Ramalhosa, E. (2017). Edible flowers: A review of the nutritional, antioxidant, antimicrobial properties and effects on human health. *Journal of Food Composition and Analysis*, 60(January), 38–50. <https://doi.org/10.1016/j.jfca.2017.03.017>
- Ferreira, S. L. C., Bruns, R. E., Ferreira, H. S., Matos, G. D., David, J. M., Brandão, G. C., da Silva, E. G. P., Portugal, L. A., dos Reis, P. S., Souza, A. S., & dos Santos, W. N. L. (2007). Box-Behnken design: An alternative for the optimization of analytical methods. *Analytica Chimica Acta*, 597(2), 179–186. <https://doi.org/10.1016/j.aca.2007.07.011>
- Fotakis, C., Tsigirmani, D., Tsiaka, T., Lantzouraki, D. Z., Strati, I. F., Makris, C., Tagkouli, D., Proestos, C., Sinanoglou, V. J., & Zoumpoulakis, P. (2016). Metabolic and antioxidant profiles of herbal infusions and decoctions. *Food Chemistry*, 211, 963–971. <https://doi.org/10.1016/j.foodchem.2016.05.124>
- Gallegos, A., & Isseroff, R. R. (2022). Simultaneous determination of tryptophan, 5-hydroxytryptophan, tryptamine, serotonin, and 5-HIAA in small volumes of mouse serum using UHPLC-ED. *MethodsX*, 9(August 2021). <https://doi.org/10.1016/j.mex.2022.101624>
- Garrido, M., Espino, J., Toribio-Delgado, A. F., Cubero, J., Maynar-Mariño, J. I., Barriga, C., Paredes, S. D., & Rodríguez, A. B. (2013). A jerte valley cherry-based product as a supply of tryptophan. *International Journal of Tryptophan Research*, 5(1), 9–14. <https://doi.org/10.4137/IJTR.S9394>
- Gibson, E. L. (2018). Tryptophan supplementation and serotonin function: Genetic variations in behavioural effects. *Proceedings of the Nutrition Society*, 77(2), 174–188. <https://doi.org/10.1017/S0029665117004451>
- González-Centeno, M. R., Comas-Serra, F., Femenia, A., Rosselló, C., & Simal, S.

- (2015). Effect of power ultrasound application on aqueous extraction of phenolic compounds and antioxidant capacity from grape pomace (*Vitis vinifera* L.): Experimental kinetics and modeling. *Ultrasonics Sonochemistry*, 22, 506–514. <https://doi.org/10.1016/j.ultsonch.2014.05.027>
- Guamán-Balcázar, M. C., Setyaningsih, W., Palma, M., & Barroso, C. G. (2016). Ultrasound-assisted extraction of resveratrol from functional foods: Cookies and jams. *Applied Acoustics*, 103, 207–213. <https://doi.org/10.1016/j.apacoust.2015.07.008>
- Hegazi, N. M., Radwan, R. A., Bakry, S. M., & Saad, H. H. (2020). Molecular networking aided metabolomic profiling of beet leaves using three extraction solvents and in relation to its anti-obesity effects. *Journal of Advanced Research*, 24, 545–555. <https://doi.org/10.1016/j.jare.2020.06.001>
- Herrera, T., Aguilera, Y., Rebollo-Hernanz, M., Bravo, E., Benítez, V., Martínez-Sáez, N., Arribas, S. M., del Castillo, M. D., & Martín-Cabrejas, M. A. (2018). Teas and herbal infusions as sources of melatonin and other bioactive non-nutrient components. *Lwt*, 89(July 2017), 65–73. <https://doi.org/10.1016/j.lwt.2017.10.031>
- Hinokidani, K., Koyama, S., Irie, M., & Nakanishi, Y. (2020). Mangrove leaves with outstanding content of free amino acids especially gaba, makes them candidates for functional food. *Food Research*, 4(5), 1663–1669. [https://doi.org/10.26656/FR.2017.4\(5\).185](https://doi.org/10.26656/FR.2017.4(5).185)
- ICH, 2005. (2005). Validation of Analytical Procedures: Text and Methodology Q1 (R1). *INTERNATIONAL CONFERENCE ON HARMONISATION OF TECHNICAL REQUIREMENTS FOR REGISTRATION OF PHARMACEUTICALS FOR HUMAN USE*, November 2005, 1–13. <https://doi.org/10.1002/9781118532331.ch23>
- Jafari-Koulaee, A., & Bagheri-Nesami, M. (2021). The effect of melatonin on sleep quality and insomnia in patients with cancer: a systematic review study. *Sleep Medicine*, 82, 96–103. <https://doi.org/10.1016/j.sleep.2021.03.040>
- Jenkins, T. A., Nguyen, J. C. D., Polglaze, K. E., & Bertrand, P. P. (2016). Influence of tryptophan and serotonin on mood and cognition with a possible role of the gut-brain axis. *Nutrients*, 8(1), 1–15. <https://doi.org/10.3390/nu8010056>
- Joo, Y. H., Nam, M. H., Chung, N., & Lee, Y. K. (2020). UPLC-QTOF-MS/MS screening and identification of bioactive compounds in fresh, aged, and browned *Magnolia denudata* flower extracts. *Food Research International*, 133(December 2018), 109192. <https://doi.org/10.1016/j.foodres.2020.109192>
- Krizek, B. A. (2011). Auxin regulation of Arabidopsis flower development involves members of the AINTEGUMENTA-LIKE/PLETHORA (AIL/PLT) family. *Journal of Experimental Botany*, 62(10), 3311–3319. <https://doi.org/10.1093/jxb/err127>
- Kumar, K., Srivastav, S., & Sharanagat, V. S. (2021). Ultrasound assisted extraction (UAE) of bioactive compounds from fruit and vegetable processing by-products: A review. *Ultrasonics Sonochemistry*, 70(August 2020), 105325. <https://doi.org/10.1016/j.ultsonch.2020.105325>
- Li, X., Zhang, Z. H., Zabel, H. M., Yun, J., Zhang, G., & Qi, X. (2021). An Insight into the Roles of Dietary Tryptophan and Its Metabolites in Intestinal Inflammation and Inflammatory Bowel Disease. *Molecular Nutrition and Food Research*, 65(5), 1–62. <https://doi.org/10.1002/mnfr.202000461>
- Liang, Q., Cui, J., Li, H., Liu, J., & Zhao, G. (2013). Florets of sunflower (*Helianthus*

- annuus L.): Potential new sources of dietary fiber and phenolic acids. *Journal of Agricultural and Food Chemistry*, 61(14), 3435–3442. <https://doi.org/10.1021/jf400569a>
- Liu, L., Jia, L., Yang, W., Xiao, Y., Dai, J., Cui, P., Zhou, L., & Yin, Q. (2022). Measurement and Correlation of Solubility of L-Tryptophan in Aqueous Solutions with a Wide Range of pH and Different Monovalent Counterions from 283.15 to 323.15 K. *Journal of Solution Chemistry*, 52(2), 228–250. <https://doi.org/10.1007/s10953-022-01229-0>
- Marhamati, M., Kheirati Kakhaki, Z., & Rezaei, M. (2020). Advance in Ultrasound-Assisted Extraction of Edible Oils: A Review. *Journal of Nutrition, Fasting and Health*, 8(4 (Special Issue on Food Safety)), 220–230. <https://doi.org/10.22038/JNFH.2020.51138.1288>
- Medina-Torres, N., Ayora-Talavera, T., Espinosa-Andrews, H., Sánchez-Contreras, A., & Pacheco, N. (2017). Ultrasound assisted extraction for the recovery of phenolic compounds from vegetable sources. *Agronomy*, 7(3). <https://doi.org/10.3390/agronomy7030047>
- Murashima, H., & Fujihara, A. (2020). Wavelength dependence of chiral recognition using ions between photoexcited tryptophan and sugars. *Chemical Physics*, 536(April), 110818. <https://doi.org/10.1016/j.chemphys.2020.110818>
- Nayak, B. N., Singh, R. B., & Buttar, H. S. (2019). Role of tryptophan in health and disease: Systematic review of the anti-oxidant, anti-inflammation, and nutritional aspects of tryptophan and its metabolites. *World Heart Journal*, 11(2), 161–178.
- Nayak, B. N., Singh, R. B., & Buttar, H. S. (2021). Biochemical and dietary functions of tryptophan and its metabolites in human health. In M. Ball (Ed.), *Functional Foods and Nutraceuticals in Metabolic and Non-Communicable Disease* (pp. 783–798). Academic Press.
- Paredes, S. D., Barriga, C., Reiter, R. J., & Rodríguez, A. B. (2009). Assessment of the potential role of tryptophan as the precursor of serotonin and melatonin for the aged sleep-wake cycle and immune function: *Streptopelia risoria* as a model. *International Journal of Tryptophan Research*, 2(1), 23–36. <https://doi.org/10.4137/ijtr.s1129>
- PARRAGA, A., GONZALES, J., PORTALES, R., RUIZ, C., & ROJAS, R. (2021). Proximate Analysis and Aminoacid Profiles of Leaves, Flowers, Pods, and Seeds of *Erythrina Edulis* From Peru. *International Journal of Pharmacy and Pharmaceutical Sciences*, 13(4), 30–32. <https://doi.org/10.22159/ijpps.2021v13i4.40312>
- Prabakaran, K., Jandas, P. J., Luo, J., Fu, C., & Wei, Q. (2021). Molecularly imprinted poly(methacrylic acid) based QCM biosensor for selective determination of L-tryptophan. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 611(November 2020), 125859. <https://doi.org/10.1016/j.colsurfa.2020.125859>
- Putra, V. G. P., Mutiarahma, S., Chaniago, W., Rahmadi, P., Kurnianto, D., Hidayat, C., Carrera, C., Palma, M., & Setyaningsih, W. (2022). An ultrasound-based technique for the analytical extraction of phenolic compounds in red algae. *Arabian Journal of Chemistry*, 15(2), 103597. <https://doi.org/10.1016/j.arabjc.2021.103597>
- Qureshi, M. N., Stecher, G., & Bonn, G. K. (2014). Quality control of herbs: Determination of amino acids in *Althaea officinalis*, *Matricaria chamomilla* and *Taraxacum officinale*. *Pakistan Journal of Pharmaceutical Sciences*, 27(3), 459–462.

- Rao, M. V., Sengar, A. S., C K, S., & Rawson, A. (2021). Ultrasonication - A green technology extraction technique for spices: A review. *Trends in Food Science and Technology*, 116(August), 975–991. <https://doi.org/10.1016/j.tifs.2021.09.006>
- Rao, T. N. (2018). *Validation of Analytical Methods Validation of Analytical Methods*. <https://doi.org/10.5772/intechopen.72087>
- Richard, D. M., Dawes, M. A., Mathias, C. W., Acheson, A., Hill-Kapturczak, N., & Dougherty, D. M. (2009). L-tryptophan: Basic metabolic functions, behavioral research and therapeutic indications. *International Journal of Tryptophan Research*, 2(1), 45–60. <https://doi.org/10.4137/ijtr.s2129>
- Roager, H. M., & Licht, T. R. (2018). Microbial tryptophan catabolites in health and disease. *Nature Communications*, 9(1), 1–10. <https://doi.org/10.1038/s41467-018-05470-4>
- Saeidnia, S., Gohari, A. R., Malmir, M., Moradi-Afrapoli, F., & Ajani, Y. (2011). Tryptophan and sterols from *Salvia limbata*. *Journal of Medicinal Plants*, 10(37), 41–47.
- Sayed, R., Thakur, M., & Gani, A. (2020). *Celosia cristata* Linn. flowers as a new source of nutraceuticals- A study on nutritional composition, chemical characterization and in-vitro antioxidant capacity. *Heliyon*, 6(12), e05792. <https://doi.org/10.1016/j.heliyon.2020.e05792>
- Setyaningsih, W., Duros, E., Palma, M., & Barroso, C. G. (2016). Optimization of the ultrasound-assisted extraction of melatonin from red rice (*Oryza sativa*) grains through a response surface methodology. *Applied Acoustics*, 103, 129–135. <https://doi.org/10.1016/j.apacoust.2015.04.001>
- Setyaningsih, W., Saputro, I. E., Palma, M., & Barroso, C. G. (2017). Optimization of the ultrasound-assisted extraction of tryptophan and its derivatives from rice (*Oryza sativa*) grains through a response surface methodology. *Journal of Cereal Science*, 75, 192–197. <https://doi.org/10.1016/j.jcs.2017.04.006>
- Sierra, I., & C, S. (2022). *High throughput analytical approach based on μ QuEChERS combined with UHPLC-PDA for analysis of bioactive secondary metabolites in edible flowers*. 393(June), 1–11. <https://doi.org/10.1016/j.foodchem.2022.133371>
- Soria, A. C., & Villamiel, M. (2010). Effect of ultrasound on the technological properties and bioactivity of food: A review. *Trends in Food Science and Technology*, 21(7), 323–331. <https://doi.org/10.1016/j.tifs.2010.04.003>
- Sotelo, A., López-García, S., & Basurto-Peña, F. (2007). Content of nutrient and antinutrient in edible flowers of wild plants in Mexico. *Plant Foods for Human Nutrition*, 62(3), 133–138. <https://doi.org/10.1007/s11130-007-0053-9>
- Spangenberg, M., Bryant, J. I., Gibson, S. J., Mousley, P. J., Ramachers, Y., & Bell, G. R. (2021). Ultraviolet absorption of contaminants in water. *Scientific Reports*, 11(1), 1–8. <https://doi.org/10.1038/s41598-021-83322-w>
- Srivastava, J. K., Shankar, E., & Gupta, S. (2010). Chamomile: A herbal medicine of the past with a bright future (review). *Molecular Medicine Reports*, 3(6), 895–901. <https://doi.org/10.3892/mmr.2010.377>
- Syahir, A., Sulaiman, S., Mel, M., Othman, M., & Zubaidah Sulaiman, S. (2020). An Overview: Analysis of ultrasonic-assisted extraction's parameters and its process. *IOP Conference Series: Materials Science and Engineering*, 778(1). <https://doi.org/10.1088/1757-899X/778/1/012165>
- Toffol, E., Kalleinen, N., Himanen, S. L., Partonen, T., Haukka, J., & Polo-Kantola, P. (2021). Nighttime melatonin secretion and sleep architecture: different associations

- in perimenopausal and postmenopausal women. *Sleep Medicine*, 81, 52–61. <https://doi.org/10.1016/j.sleep.2021.02.011>
- Tomšik, A., Pavlič, B., Vladić, J., Ramić, M., Brindza, J., & Vidović, S. (2016). Optimization of ultrasound-assisted extraction of bioactive compounds from wild garlic (*Allium ursinum* L.). *Ultrasonics Sonochemistry*, 29, 502–511. <https://doi.org/10.1016/j.ultsonch.2015.11.005>
- Wang, W., Ma, X., Xu, Y., Cao, Y., Jiang, Z., Ding, T., Ye, X., & Liu, D. (2015). Ultrasound-assisted heating extraction of pectin from grapefruit peel: Optimization and comparison with the conventional method. *Food Chemistry*, 178, 106–114. <https://doi.org/10.1016/j.foodchem.2015.01.080>
- Xia, H., & Lan, Q. (2014). *Method for extracting chamomile flavonoid by continuous counter-current ultrasound wave* (Patent No. CN103845377A).
- Yao, S., Mettu, S., Law, S. Q. K., Ashokkumar, M., & Martin, G. J. O. (2018). The effect of high-intensity ultrasound on cell disruption and lipid extraction from high-solids viscous slurries of *Nannochloropsis* sp. biomass. *Algal Research*, 35(September), 341–348. <https://doi.org/10.1016/j.algal.2018.09.004>
- Zhu, W., Fan, Y., Xu, Q., Liu, X., Heng, B., Yang, W., & Hu, Y. (2019). Saturated solubility and thermodynamic evaluation of L-Tryptophan in Eight Pure Solvents and Three Groups of Binary Mixed Solvents by the Gravimetric Method at T = 278.15–333.15 K. *Journal of Chemical and Engineering Data*, 64(9), 4154–4168. <https://doi.org/10.1021/acs.jced.9b00562>
- Zou, X. Y., He, Y. J., Yang, Y. H., Yan, X. P., Li, Z. B., & Yang, H. (2022). Systematic Identification of Bioactive Compositions in Leaves of *Morus* Cultivars Using UHPLC-ESI-QTOF-MS/MS and Comprehensive Screening of High-Quality Resources. *Separations*, 9(3). <https://doi.org/10.3390/separations9030076>
- Zoulas, N., Duttke, S. H. C., Garcês, H., Spencer, V., & Kim, M. (2019). The role of auxin in the pattern formation of the asteraceae flower head (Capitulum) 1[CC-BY]. *Plant Physiology*, 179(2), 391–401. <https://doi.org/10.1104/pp.18.01119>