

## DAFTAR PUSTAKA

- Aasfar, A., Bargaz, A., Yaakoubi, K., Hilali, A., Bennis, I., Zeroual, Y. and Meftah Kadmiri, I. (2021), "Nitrogen Fixing Azotobacter Species as Potential Soil Biological Enhancers for Crop Nutrition and Yield Stability", *Frontiers in Microbiology*, Frontiers Media S.A., Vol. 12, p. 628379, doi: 10.3389/FMICB.2021.628379/XML/NLM.
- Abajihad, A. and Chandravanshi, B.S. (2025), "VITAMIN C CONTENT AND ANTIOXIDANT ACTIVITY OF EIGHT SELECTED VEGETABLES WIDELY CONSUMED IN ADDIS ABABA, ETHIOPIA", *Bulletin of the Chemical Society of Ethiopia*, Chemical Society of Ethiopia, Vol. 39 No. 4, pp. 629–641, doi: 10.4314/bcse.v39i4.3.
- Aguilar-Toalá, J.E. and Liceaga, A.M. (2021), "Cellular antioxidant effect of bioactive peptides and molecular mechanisms underlying: beyond chemical properties", *International Journal of Food Science and Technology*, Blackwell Publishing Ltd, Vol. 56 No. 5, pp. 2193–2204, doi: 10.1111/ijfs.14855.
- Ahmed, M. and Eun, J.B. (2018), "Flavonoids in fruits and vegetables after thermal and nonthermal processing: A review", *Critical Reviews in Food Science and Nutrition*, Taylor & Francis, Vol. 58 No. 18, pp. 3159–3188, doi: 10.1080/10408398.2017.1353480.
- Ahmed, Z.F.R., Alnuaimi, A.K.H., Askri, A. and Tzortzakis, N. (2021), "Evaluation of Lettuce (*Lactuca sativa* L.) Production under Hydroponic System: Nutrient Solution Derived from Fish Waste vs. Inorganic Nutrient Solution", *Horticulturae*, MDPI, Vol. 7 No. 9, pp. 1–12, doi: 10.3390/HORTICULTURAE7090292.
- Ali, M. and Abedullah, A. (2024), "Nutritional and economic benefits of enhanced vegetable production and consumption", *Food Systems for Improved Human Nutrition: Linking Agriculture, Nutrition and Productivity*, CRC Press, Boca Raton, pp. 145–176, doi: 10.1201/9781003578277-7.
- AlJuhaimi, F., Mohamed Ahmed, I.A., Özcan, M.M., Uslu, N. and Albakry, Z. (2024), "Quantitative Determination of Biogenic Element Contents and Phytochemicals of Broccoli (*Brassica oleracea* var. *italica*) Cooked Using Different Techniques", *Plants*, Multidisciplinary Digital Publishing Institute (MDPI), Vol. 13 No. 10, p. 1283, doi: 10.3390/PLANTS13101283.
- Al-Khayri, J.M., Sahana, G.R., Nagella, P., Joseph, B. V., Alessa, F.M. and Al-Mssallem, M.Q. (2022), "Flavonoids as Potential Anti-Inflammatory Molecules: A Review", *Molecules*, Multidisciplinary Digital Publishing Institute (MDPI), Vol. 27 No. 9, doi: 10.3390/MOLECULES27092901.
- Alongi, M. and Anese, M. (2021), "Re-thinking functional food development through a holistic approach", *Journal of Functional Foods*, Elsevier, Vol. 81, pp. 1–13, doi: 10.1016/J.JFF.2021.104466.
- Ambore, B., Smitha, B.A., Sunitha, K., Priyanga, P. and Aishwarya, G. (2025), "Hydroponics: Advancing Sustainable Technologies and Applications in Crop Production with a Focus on Lettuce Cultivation", *Journal of Information Systems Engineering and Management*, IADITI - International Association for Digital Transformation and Technological Innovation, Vol. 10, pp. 636–651, doi: 10.52783/jisem.v10i5s.754.

- Anand David, A.V., Arulmoli, R. and Parasuraman, S. (2016), "Overviews of Biological Importance of Quercetin: A Bioactive Flavonoid", *Pharmacognosy Reviews*, Medknow Publications, Vol. 10 No. 20, p. 84, doi: 10.4103/0973-7847.194044.
- Andaç Öztürk, S. and Yaman, M. (2022), "Investigation of bioaccessibility of vitamin C in various fruits and vegetables under in vitro gastrointestinal digestion system", *Journal of Food Measurement and Characterization*, Springer, Vol. 16 No. 5, pp. 3735–3742, doi: 10.1007/S11694-022-01486-Z/FIGURES/5.
- Arabbi, P.R., Genovese, M.I. and Lajolo, F.M. (2004), "Flavonoids in Vegetable Foods Commonly Consumed in Brazil and Estimated Ingestion by the Brazilian Population", *Journal of Agricultural and Food Chemistry*, American Chemical Society, Vol. 52 No. 5, pp. 1124–1131, doi: 10.1021/jf0499525.
- Arsil, P., Ardiansyah and Yanto, T. (2018), "Determinants of local food consumption among shoppers in traditional markets", *International Journal of Engineering and Technology (UAE)*, Science Publishing Corporation Inc, Vol. 7 No. 4, pp. 422–425, doi: 10.14419/ijet.v7i4.28.22624.
- Avena-Bustillos, R.J., Klausner, N., Milczarek, R., Alemán-Hidalgo, D.M., Terán-Cabanillas, E., Wang, H., Wang, L., *et al.* (2024), "Upcycling Romaine lettuce outer leaves by infrared blanching and hot air drying", *Journal of Food Science*, John Wiley and Sons Inc, Vol. 89 No. 4, pp. 1988–2000, doi: 10.1111/1750-3841.16977.
- Azupogo, F., Seidu, J.A. and Issaka, Y.B. (2018), "Higher vegetable intake and vegetable variety is associated with a better self-reported health-related quality of life (HR-QoL) in a cross-sectional survey of rural northern Ghanaian women in fertile age", *BMC Public Health*, BioMed Central Ltd., Vol. 18 No. 1, doi: 10.1186/s12889-018-5845-3.
- Baghel, S.S., Shrivastava, N., Baghel, R.S., Agrawal, P. and Rajput, S. (2012), "A review of quercetin: Antioxidant and anticancer properties", *World Journal of Pharmacy and Pharmaceutical Sciences*, Vol. 1 No. 1, pp. 146–160.
- Baskar, V., Venkatesh, R. and Ramalingam, S. (2018), "Flavonoids (antioxidants systems) in higher plants and their response to stresses", *Antioxidants and Antioxidant Enzymes in Higher Plants*, Springer International Publishing, pp. 253–268, doi: 10.1007/978-3-319-75088-0\_12.
- Billowria, K., Ali, R., Rangra, N.K., Kumar, R. and Chawla, P.A. (2024), "Bioactive Flavonoids: A Comprehensive Review on Pharmacokinetics and Analytical Aspects", *Critical Reviews in Analytical Chemistry*, Crit Rev Anal Chem, Vol. 54 No. 5, pp. 1002–1016, doi: 10.1080/10408347.2022.2105641.
- Blasi, F., Yoon, B., Sawabe, A., Biernacka, B., Susa, F. and Pisano, R. (2023), "Advances in Ascorbic Acid (Vitamin C) Manufacturing: Green Extraction Techniques from Natural Sources", *Processes*, Vol. 11 No. 11, pp. 1–17, doi: 10.3390/pr11113167.
- BPS. (2020), "Sensus Penduduk 2020", available at: <https://sensus.bps.go.id/main/index/sp2020> (accessed 29 December 2024).

- Carr, A.C., Block, G. and Lykkesfeldt, J. (2022), "Estimation of Vitamin C Intake Requirements Based on Body Weight: Implications for Obesity", *Nutrients*, MDPI, Vol. 14 No. 7, p. 1460, doi: 10.3390/nu14071460.
- Carr, A.C. and Maggini, S. (2017), "Vitamin C and Immune Function", *Nutrients 2017, Vol. 9, Page 1211*, Multidisciplinary Digital Publishing Institute, Vol. 9 No. 11, pp. 1–25, doi: 10.3390/NU9111211.
- Carr, A.C. and Vissers, M.C.M. (2013), "Synthetic or food-derived vitamin C—Are they equally bioavailable?", *Nutrients*, MDPI AG, Vol. 5 No. 11, pp. 4284–4304, doi: 10.3390/nu5114284.
- Carrara, J.E. and Heller, W.P. (2022), "Arbuscular mycorrhizal species vary in their impact on nutrient uptake in sweet corn (*Zea mays*) and butternut squash (*Cucurbita moschata*)", *Frontiers in Agronomy*, Frontiers Media S.A., Vol. 4, p. 1040054, doi: 10.3389/FAGRO.2022.1040054/PDF.
- Cattivelli, A., Zannini, M., De Angeli, M., D'Arca, D., Minischetti, V., Conte, A. and Tagliacruzchi, D. (2024), "Bioaccessibility of Flavones, Flavanones, and Flavonols from Vegetable Foods and Beverages", *Biology*, Biology (Basel), Vol. 13 No. 12, pp. 1–16, doi: 10.3390/BIOLOGY13121081.
- Chambial, S., Dwivedi, S., Shukla, K.K., John, P.J. and Sharma, P. (2013), "Vitamin C in disease prevention and cure: An overview", *Indian Journal of Clinical Biochemistry*, Springer, Vol. 28 No. 4, pp. 314–328, doi: 10.1007/s12291-013-0375-3.
- Chaturvedi, S., Khan, S., Bhunia, R.K., Kaur, K. and Tiwari, S. (2022), "Metabolic engineering in food crops to enhance ascorbic acid production: crop biofortification perspectives for human health", *Physiology and Molecular Biology of Plants*, Springer, Vol. 28 No. 4, pp. 871–884, doi: 10.1007/s12298-022-01172-w.
- Chaves, J.O., de Souza, M.C., da Silva, L.C., Lachos-Perez, D., Torres-Mayanga, P.C., Machado, A.P. da F., Forster-Carneiro, T., *et al.* (2020), "Extraction of Flavonoids From Natural Sources Using Modern Techniques", *Frontiers in Chemistry*, Frontiers Media S.A., Vol. 8, p. 507887, doi: 10.3389/FCHEM.2020.507887/XML/NLM.
- Chen, X., Jiang, C., Long, M., Hu, X., Xu, S., Huo, H., Shi, R., *et al.* (2025), "Overexpression of the *Glycyrrhiza uralensis* Phenylalanine Ammonia-Lyase Gene *GuPAL1* Promotes Flavonoid Accumulation in *Arabidopsis thaliana*", *International Journal of Molecular Sciences*, Multidisciplinary Digital Publishing Institute (MDPI), Vol. 26 No. 9, p. 4073, doi: 10.3390/IJMS26094073/S1.
- Chhikara, N. and Panghal, A. (2021), "Overview of Functional Foods", *Functional Foods*, Wiley, pp. 1–20, doi: 10.1002/9781119776345.ch1.
- Cifuentes-Torres, L., Mendoza-Espinosa, L.G., Correa-Reyes, G. and Daesslé, L.W. (2021), "Hydroponics with wastewater: a review of trends and opportunities", *Water and Environment Journal*, John Wiley & Sons, Ltd, Vol. 35 No. 1, pp. 166–180, doi: 10.1111/WEJ.12617.
- Cole, D.L., Kobza, S.J., Fahning, S.R., Stapley, S.H., Bonsrah, D.K.A., Buck, R.L. and Hopkins, B.G. (2021), "Soybean nutrition in a novel single-nutrient source hydroponic solution", *Agronomy*, MDPI AG, Vol. 11 No. 3, p. 523, doi: 10.3390/agronomy11030523.
- Cometti, N.N., Bremenkamp, D.M., Galon, K., Hell, L.R. and Zanotelli, M.F. (2013), "Cooling and concentration of nutrient solution in hydroponic lettuce crop", *Horticultura Brasileira*, Associação Brasileira de

- Horticultura, Vol. 31 No. 2, pp. 287–292, doi: 10.1590/S0102-05362013000200018.
- Darmawan, E.S., Kusuma, D., Permanasari, V.Y., Amir, V., Tjandrarini, D.H. and Dharmayanti, I. (2023), “Beyond the Plate: Uncovering Inequalities in Fruit and Vegetable Intake across Indonesian Districts”, *Nutrients*, MDPI, Vol. 15 No. 9, p. 2160, doi: 10.3390/nu15092160.
- Dasgan, H.Y., Yilmaz, D., Zikaria, K., Ikiz, B. and Gruda, N.S. (2023), “Enhancing the Yield, Quality and Antioxidant Content of Lettuce through Innovative and Eco-Friendly Biofertilizer Practices in Hydroponics”, *Horticulturae* 2023, Vol. 9, Page 1274, Multidisciplinary Digital Publishing Institute, Vol. 9 No. 12, p. 1274, doi: 10.3390/HORTICULTURAE9121274.
- Davis, W. V, Weber, C., Wechsler, S.J., Wakefield, H. and Lucier, G. (2024), “Vegetables and Pulses Outlook: April 2024 | Economic Research Service”, *USDA*, 25 April, available at: <https://www.ers.usda.gov/publications/pub-details?pubid=109066> (accessed 29 April 2025).
- Domínguez Díaz, L., Fernández-Ruiz, V. and Cámara, M. (2020), “The frontier between nutrition and pharma: The international regulatory framework of functional foods, food supplements and nutraceuticals”, *Critical Reviews in Food Science and Nutrition*, Taylor & Francis, Vol. 60 No. 10, pp. 1738–1746, doi: 10.1080/10408398.2019.1592107.
- Drinkwater, L.E. and Snapp, S.S. (2022), “Advancing the science and practice of ecological nutrient management for smallholder farmers”, *Frontiers in Sustainable Food Systems*, Frontiers Media S.A., Vol. 6, p. 921216, doi: 10.3389/FSUFS.2022.921216/BIBTEX.
- Duthie, S.J., Duthie, G.G., Russell, W.R., Kyle, J.A.M., Macdiarmid, J.I., Rungapamestry, V., Stephen, S., *et al.* (2018), “Effect of increasing fruit and vegetable intake by dietary intervention on nutritional biomarkers and attitudes to dietary change: a randomised trial”, *European Journal of Nutrition*, Dr. Dietrich Steinkopff Verlag GmbH and Co. KG, Vol. 57 No. 5, pp. 1855–1872, doi: 10.1007/s00394-017-1469-0.
- Dziuba, S.T., Ingaldi, M., Hamplová, E. and Cierniak-Emerych, A. (2019), “FOOD SAFETY AND COMPETENCIES OF LABORATORY EMPLOYEES IN ORGANIC FOOD PROCESSING”, *System Safety: Human - Technical Facility - Environment*, Sciendo, Vol. 1 No. 1, pp. 591–598, doi: 10.2478/czoto-2019-0075.
- Erickson, B. and Fausti, S.W. (2021), “The role of precision agriculture in food security”, *Agronomy Journal*, John Wiley and Sons Inc, Vol. 113 No. 6, pp. 4455–4462, doi: 10.1002/agj2.20919.
- Evana and Barek, M.S. (2021), “Determination of Vitamin C (Ascorbic Acid) Contents in Two Varieties of Melon Fruits (*Cucumis melo* L.) by Iodometric Titration”, *Fullerene Journal of Chemistry*, Vol. 6 No. 2, pp. 143–147, doi: 10.37033/FJC.V6I2.342.
- Fachriyah, E., Haryanto, I.B., Kusriani, D., Sarjono, P.R. and Ngadiwiyan, N. (2023), “Antioxidant Activity of Flavonoids from Cassava Leaves (*Manihot esculenta* Crantz)”, *Jurnal Kimia Sains Dan Aplikasi*, Chemistry Department, Faculty of Sciences and Mathematics, Diponegoro University, Vol. 26 No. 1, pp. 10–18, doi: 10.14710/JKSA.26.1.10-18.
- Fachriyah, E., Kusriani, D., Haryanto, I.B., Mutiara, S., Wulandari, B., Lestari,

- W.I. and Sumariyah. (2020), "Phytochemical Test, Determination of Total Phenol, Total Flavonoids and Antioxidant Activity of Ethanol Extract of Moringa Leaves (*Moringa oleifera* Lam)", *Jurnal Kimia Sains Dan Aplikasi*, Chemistry Department, Faculty of Sciences and Mathematics, Diponegoro University, Vol. 23 No. 8, pp. 290–294, doi: 10.14710/JKSA.23.8.290-294.
- Fahde, S., Boughribil, S., Sijilmassi, B. and Amri, A. (2023), "Rhizobia: A Promising Source of Plant Growth-Promoting Molecules and Their Non-Legume Interactions: Examining Applications and Mechanisms", *Agriculture*, Multidisciplinary Digital Publishing Institute, Vol. 13 No. 7, p. 1279, doi: 10.3390/AGRICULTURE13071279.
- Fenech, M., Amaya, I., Valpuesta, V. and Botella, M.A. (2019), "Vitamin C content in fruits: Biosynthesis and regulation", *Frontiers in Plant Science*, Frontiers Media S.A., Vol. 9, pp. 1–21, doi: 10.3389/FPLS.2018.02006/PDF.
- Fernandes, S.S., Coelho, M.S. and Salas-Mellado, M. de las M. (2019), "Bioactive Compounds as Ingredients of Functional Foods", *Bioactive Compounds: Health Benefits and Potential Applications*, Elsevier, pp. 129–142, doi: 10.1016/B978-0-12-814774-0.00007-4.
- Feszterová, M., Kowalska, M. and Mišiaková, M. (2023), "Stability of Vitamin C Content in Plant and Vegetable Juices under Different Storing Conditions", *Applied Sciences (Switzerland)*, Multidisciplinary Digital Publishing Institute (MDPI), Vol. 13 No. 19, p. 10640, doi: 10.3390/app131910640.
- Fitriansah, T., Roviq, M. and Karyawati, A.S. (2019), "Pertumbuhan Tanaman Selada (*Lactuca Sativa* L) pada Dosis dan Interval Penambahan AB Mix dengan Sistem Hidroponik", *Produksi Tanaman*, Vol. 7 No. 3, pp. 538–544.
- Găgeanu, I., Tăbărașu, A.M., Persu, C., Gheorghe, G., Nițu, M., Cujbescu, D., Ionescu, A., *et al.* (2024), "HYDROPONIC VERTICAL SYSTEMS: ENHANCING CLIMATE RESILIENCE, WATER EFFICIENCY, AND URBAN AGRICULTURE", *INMATEH - Agricultural Engineering*, INMA Bucharest, Vol. 73 No. 2, pp. 94–109, doi: 10.35633/INMATEH-73-08.
- Gao, Y., Xia, W., Shao, P., Wu, W., Chen, H., Fang, X., Mu, H., *et al.* (2022), "Impact of thermal processing on dietary flavonoids", *Current Opinion in Food Science*, Elsevier, Vol. 48, pp. 1–8, doi: 10.1016/J.COFS.2022.100915.
- Ghadamgahi, F., Tarighi, S., Taheri, P., Saripella, G.V., Anzalone, A., Kalyandurg, P.B., Catara, V., *et al.* (2022), "Plant Growth-Promoting Activity of *Pseudomonas aeruginosa* FG106 and Its Ability to Act as a Biocontrol Agent against Potato, Tomato and Taro Pathogens", *Biology*, MDPI, Vol. 11 No. 1, p. 140, doi: 10.3390/BIOLOGY11010140/S1.
- Gholami, A., De Geyter, N., Pollier, J., Goormachtig, S. and Goossens, A. (2014), "Natural product biosynthesis in *Medicago* species", *Natural Product Reports*, The Royal Society of Chemistry, Vol. 31 No. 3, pp. 356–380, doi: 10.1039/C3NP70104B.
- Gillespie, D.P., Papio, G. and Kubota, C. (2021), "High Nutrient Concentrations of Hydroponic Solution Can Improve Growth and Nutrient Uptake of Spinach (*Spinacia oleracea* L.) Grown in Acidic Nutrient Solution", *HortScience*, American Society for Horticultural

- Science, Vol. 56 No. 6, pp. 687–694, doi: 10.21273/HORTSCI15777-21.
- González, Y., Navarra, A., Jeldres, R.I. and Toro, N. (2021), “Hydrometallurgical processing of magnesium minerals – A review”, *Hydrometallurgy*, Elsevier B.V., Vol. 201, p. 105573, doi: 10.1016/j.hydromet.2021.105573.
- Gopal, S.S., Lakshmi, M.J., Sharavana, G., Sathaiah, G., Sreerama, Y.N. and Baskaran, V. (2017), “Lactucaxanthin – a potential anti-diabetic carotenoid from lettuce (*Lactuca sativa*) inhibits  $\alpha$ -amylase and  $\alpha$ -glucosidase activity in vitro and in diabetic rats”, *Food & Function*, The Royal Society of Chemistry, Vol. 8 No. 3, pp. 1124–1131, doi: 10.1039/C6FO01655C.
- Granger, M. and Eck, P. (2018), “Dietary Vitamin C in Human Health”, *Advances in Food and Nutrition Research*, Academic Press, Vol. 83, pp. 281–310, doi: 10.1016/BS.AFNR.2017.11.006.
- Grzegorzewska, M., Badelek, E., Matysiak, B., Kaniszewski, S., Dyśko, J., Kowalczyk, W., Wrzodak, A., et al. (2023), “Assessment of romaine lettuce cultivars grown in a vertical hydroponic system at two levels of LED light intensity”, *Scientia Horticulturae*, Elsevier, Vol. 313, p. 111913, doi: 10.1016/J.SCIENTA.2023.111913.
- Guo, Y., Liu, C., Ye, R. and Duan, Q. (2020), “Advances on Water Quality Detection by UV-Vis Spectroscopy”, *Applied Sciences*, Multidisciplinary Digital Publishing Institute, Vol. 10 No. 19, pp. 1–18, doi: 10.3390/APP10196874.
- Gutiérrez-Chávez, A., Robles-Hernández, L., Guerrero, B.I., González-Franco, A.C., Medina-Pérez, G., Acevedo-Barrera, A.A. and Hernández-Huerta, J. (2025), “Potential of *Trichoderma asperellum* as a Growth Promoter in Hydroponic Lettuce Cultivated in a Floating-Root System”, *Plants*, Multidisciplinary Digital Publishing Institute (MDPI), Vol. 14 No. 3, p. 382, doi: 10.3390/PLANTS14030382/S1.
- Hamza, A., Abdelraouf, R.E., Helmy, Y.I. and El-Sawy, S.M.M. (2022), “Using deep water culture as one of the important hydroponic systems for saving water, mineral fertilizers and improving the productivity of lettuce crop”, *International Journal of Health Sciences*, Universidad Tecnica de Manabi, Vol. 6 No. 59, pp. 2311–2331, doi: 10.53730/IJHS.V6NS9.12932.
- Han, Y., Pei, Y., Wang, J., Xiao, Z., Miao, Y., Wang, Z., Zhang, F., et al. (2024), “Research progress on the nano-delivery systems of food-derived bioactive components”, *Food Bioscience*, Elsevier, Vol. 62, p. 105189, doi: 10.1016/J.FBIO.2024.105189.
- Handayani, T. (2023), “Analisis Limbah Media Zarrouk Modifikasi yang Digunakan untuk Budidaya *Spirulina platensis* dan Analisis Kualitas Biomassanya sebagai Bahan Pangan Fungsional”, *Jurnal Teknologi Lingkungan*, Vol. 24 No. 2, pp. 315–322.
- Harliantara, Bandaso, M.L., Roreng, P.P., Borovitskaya, M. V. and Shichiyakh, R.A. (2020), “Sustainability of economic resources”, *Journal of Environmental Treatment Techniques*, Dorma Journals, Vol. 8 No. 1, pp. 556–559.
- Hassan, M.N., Mekawy, S.A., Mahdy, M., Salem, K.F.M. and Tawfik, E. (2021), “Recent molecular and breeding strategies in lettuce (*Lactuca* spp.)”, *Genetic Resources and Crop Evolution*, Springer Science and

- Business Media B.V., Vol. 68 No. 8, pp. 3055–3079, doi: 10.1007/s10722-021-01246-w.
- Hayes, R.J. and Simko, I. (2016), “Breeding lettuce for improved fresh-cut processing”, *Acta Horticulturae*, International Society for Horticultural Science, Vol. 1141, pp. 65–76, doi: 10.17660/ActaHortic.2016.1141.7.
- Helmiawan, Y. and Aini, N. (2024), “Pengaruh Pemberian Air Kelapa terhadap Pertumbuhan dan Hasil Tanaman Selada Romaine (*Lactuca Sativa* L. Var. *Longifolia*) pada Sistem Hidroponik”, *Produksi Tanaman*, Brawijaya University, Vol. 12 No. 04, pp. 265–270, doi: 10.21776/UB.PROTAN.2024.012.04.06.
- Hemilä, H. (2017), “Vitamin C and Infections”, *Nutrients*, Multidisciplinary Digital Publishing Institute, Vol. 9 No. 4, p. 339, doi: 10.3390/NU9040339.
- Herbig, A.L. and Renard, C.M.G.C. (2017), “Factors that impact the stability of vitamin C at intermediate temperatures in a food matrix”, *Food Chemistry*, Elsevier, Vol. 220, pp. 444–451, doi: 10.1016/J.FOODCHEM.2016.10.012.
- Hiatt, A.N., Ferruzzi, M.G., Taylor, L.S. and Mauer, L.J. (2011), “Deliquescence Behavior and Chemical Stability of Vitamin C Forms (Ascorbic Acid, Sodium Ascorbate, and Calcium Ascorbate) and Blends”, *International Journal of Food Properties*, Taylor & Francis Group, Vol. 14 No. 6, pp. 1330–1348, doi: 10.1080/10942911003650338.
- Hidayanti, L. and Kartika, T. (2019), “Pengaruh Nutrisi AB Mix Terhadap Pertumbuhan Tanaman Bayam Merah (*Amaranthus tricolor* L.) secara Hidroponik”, *Sainmatika: Jurnal Ilmiah Matematika Dan Ilmu Pengetahuan Alam*, Universitas PGRI Palembang, Vol. 16 No. 2, pp. 166–175, doi: 10.31851/SAINMATIKA.V16I2.3214.
- Huang, X., Tu, R., Song, H., Dong, K., Geng, F., Chen, L., Huang, Q., *et al.* (2022), “Gelatin-EGCG-high methoxyl pectin ternary complex stabilized W1/O/W2 double emulsions loaded with vitamin C: Formation, structure, stability, in vitro gastrointestinal digestion”, *International Journal of Biological Macromolecules*, Elsevier, Vol. 216, pp. 891–905, doi: 10.1016/J.IJBIOMAC.2022.07.210.
- Idelbe, A., Obead, H. and Baladiah, R. (2023), “Evaluation of the response of some lettuce cultivars to growth, production, and quality indicators using hydroponic systems”, *Future of Food: Journal on Food, Agriculture and Society*, University of Kassel, Vol. 11 No. 5, pp. 1–17, doi: 10.17170/kobra-202307218421.
- Jayapala, N., Rani Elavarasan, A., Chaudhari, S.R. and Vallikannan, B. (2020), “Cytotoxicity and 3T3-L1 cell uptake of lactucaxanthin purified and characterized by LC-MS and NMR from lettuce (*Lactuca sativa*)”, *Journal of Liquid Chromatography and Related Technologies*, Taylor and Francis Inc., Vol. 43 No. 7, pp. 233–246, doi: 10.1080/10826076.2020.1719414.
- Jiang, L., Zhang, G., Li, Y., Shi, G., Li, M., Khan, H., Wali Khan University Mardan, A., *et al.* (2021), “Potential Application of Plant-Based Functional Foods in the Development of Immune Boosters”, *Frontiers in Pharmacology*, Vol. 12 No. 637782, pp. 1–18, doi: 10.3389/fphar.2021.637782.
- Jin, J., Chowdhury, M.H.U., Hafizur Rahman, M., Choi, K.Y. and Adnan, M.

- (2023), "Bioactive Compounds and Signaling Pathways of *Wolfiporia extensa* in Suppressing Inflammatory Response by Network Pharmacology", *Life*, MDPI, Vol. 13 No. 4, pp. 1–21, doi: 10.3390/life13040893.
- Jin, N., Jin, L., Wang, S., Li, J., Liu, F., Liu, Z., Luo, S., *et al.* (2022), "Reduced Chemical Fertilizer Combined With Bio-Organic Fertilizer Affects the Soil Microbial Community and Yield and Quality of Lettuce", *Frontiers in Microbiology*, Frontiers Media S.A., Vol. 13, doi: 10.3389/FMICB.2022.863325/PDF.
- Joo, J.H. and Hussein, K.A. (2022), "Biological Control and Plant Growth Promotion Properties of Volatile Organic Compound-Producing Antagonistic *Trichoderma* spp.", *Frontiers in Plant Science*, Frontiers Media S.A., Vol. 13, p. 897668, doi: 10.3389/FPLS.2022.897668/BIBTEX.
- Jungert, A. and Neuhäuser-Berthold, M. (2015), "The lower vitamin C plasma concentrations in elderly men compared with elderly women can partly be attributed to a volumetric dilution effect due to differences in fat-free mass", *British Journal of Nutrition*, Cambridge University Press, Vol. 113 No. 5, pp. 859–864, doi: 10.1017/S0007114515000240.
- Jutkus, R.A.L., Li, N., Taylor, L.S. and Mauer, L.J. (2015), "Effect of Temperature and Initial Moisture Content on the Chemical Stability and Color Change of Various Forms of Vitamin C", *International Journal of Food Properties*, Taylor & Francis, Vol. 18 No. 4, pp. 862–879, doi: 10.1080/10942912.2013.805770.
- Kaewchuay, N., Jantra, J., Khettalat, C., Ketnok, S., Peungpra, N. and Teepoo, S. (2021), "On-site microfluidic paper-based titration device for rapid semi-quantitative vitamin C content in beverages", *Microchemical Journal*, Elsevier, Vol. 164, pp. 1–8, doi: 10.1016/J.MICROC.2021.106054.
- Kannan, M., Elavarasan, G., Balamurugan, A., Dhanusiya, B. and Freedom, D. (2022), "Hydroponic farming – A state of art for the future agriculture", *Materials Today: Proceedings*, Elsevier Ltd, Vol. 68, pp. 2163–2166, doi: 10.1016/j.matpr.2022.08.416.
- Khairunnisa, M., Nurcahyani, Y.D., Samsudin, M. and Martiyana, C. (2022), "The Influence of My Plate Campaign to Increase Local Fruit And Vegetable Consumption", *IOP Conference Series: Earth and Environmental Science*, Institute of Physics, Vol. 1024 No. 1, doi: 10.1088/1755-1315/1024/1/012081.
- Khan, A., Khan, R.A., Ali, M. and Shinwari, Z.K. (2023), "IMPACT OF PLANT GROWTH PROMOTING RHIZOBACTERIA BIOFERTILZERS ON BIOCHEMICAL ATTRIBUTES, ANTIOXIDANT ACTIVITIES, NUTRITIONAL VALUES AND PRODUCTIVITY OF MAIZE", *Pakistan Journal of Botany*, Pakistan Botanical Society, Vol. 55 No. 6, pp. 2057–2066, doi: 10.30848/PJB2023-6(33).
- Khan, A.R., Mustafa, A., Hyder, S., Valipour, M., Rizvi, Z.F., Gondal, A.S., Yousuf, Z., *et al.* (2022), "Bacillus spp. as Bioagents: Uses and Application for Sustainable Agriculture", *Biology*, Multidisciplinary Digital Publishing Institute, Vol. 11 No. 12, p. 1763, doi: 10.3390/BIOLOGY11121763.
- Khan, J., Deb, P.K., Priya, S., Medina, K.D., Devi, R., Walode, S.G. and

- Rudrapal, M. (2021), "Dietary Flavonoids: Cardioprotective Potential with Antioxidant Effects and Their Pharmacokinetic, Toxicological and Therapeutic Concerns", *Molecules*, Multidisciplinary Digital Publishing Institute, Vol. 26 No. 13, p. 4021, doi: 10.3390/MOLECULES26134021.
- Khan, S., Purohit, A. and Vadsaria, N. (2020), "Hydroponics: current and future state of the art in farming", *Journal of Plant Nutrition*, Bellwether Publishing, Ltd., Vol. 44 No. 10, pp. 1515–1538, doi: 10.1080/01904167.2020.1860217.
- Khoerunnisa, Proklamasiningsih, E. and Budisantoso, I. (2024), "Pertumbuhan dan Kandungan Polifenol Selada Merah (*Lactuca sativa* L. var. *Crispa*) pada Media Tanam dengan Pemberian Asam Humat", *BioEksakta: Jurnal Ilmiah Biologi Unsoed*, Universitas Jenderal Soedirman, Vol. 5 No. 3, pp. 160–167, doi: 10.20884/1.BIOE.2023.5.3.5876.
- Kim, E.J., Seo, J. Bin, Yu, J.S., Lee, S., Lim, J.S., Choi, J.U., Lee, C.M., *et al.* (2021), "Anti-inflammatory effects of a polyphenol, catechin-7,4'-o-digallate, from woodfordia uniflora by regulating nf-kb signaling pathway in mouse macrophages", *Pharmaceutics*, MDPI AG, Vol. 13 No. 3, pp. 1–12, doi: 10.3390/pharmaceutics13030408.
- Kim, M.J., Moon, Y., Tou, J.C., Mou, B. and Waterland, N.L. (2016), "Nutritional value, bioactive compounds and health benefits of lettuce (*Lactuca sativa* L.)", *Journal of Food Composition and Analysis*, Academic Press Inc., Vol. 49, pp. 19–34, doi: 10.1016/j.jfca.2016.03.004.
- Kirakosyan, G., Melyan, G., Vardanyan, V. and Sarikyan, K. (2024), "Effect of biofertilizers on the content of bioactive components of common bean under open field and greenhouse cultivation conditions", *Bioactive Compounds in Health and Disease*, Functional Food Institute, Vol. 7 No. 12, pp. 669–680, doi: 10.31989/bchd.v7i12.1519.
- Kisiel, A., Miller, T., Łobodzińska, A. and Rybak, K. (2024), "Biosynthesis of Phenolic Compounds of *Medicago truncatula* After Inoculation with Selected PGPR Strains", *International Journal of Molecular Sciences*, Multidisciplinary Digital Publishing Institute (MDPI), Vol. 25 No. 23, p. 12684, doi: 10.3390/IJMS252312684/S1.
- Kuesten, C. and Hu, C. (2020), "Functional Foods and Protein Supplementation", *Handbook of Eating and Drinking: Interdisciplinary Perspectives*, Springer International Publishing, pp. 941–964, doi: 10.1007/978-3-030-14504-0\_175.
- Kumar, P. and Singh, J. (2024), "Hydroponic: An Eco-friendly Future", *Hydroponics and Environmental Bioremediation*, Springer Nature, pp. 223–267, doi: 10.1007/978-3-031-53258-0\_9.
- Kurepin, L. V., Ivanov, A.G., Zaman, M., Pharis, R.P., Hurry, V. and Hüner, N.P.A. (2017), "Interaction of glycine betaine and plant hormones: Protection of the photosynthetic apparatus during abiotic stress", *Photosynthesis: Structures, Mechanisms, and Applications*, Springer International Publishing, pp. 185–202, doi: 10.1007/978-3-319-48873-8\_9.
- Kusmiyati, Khairuddin, Rasmi, D.A.C. and Sedijani, P. (2023), "Penyuluhan Tentang Porsi Sayuran dan Buah-Buahan Dalam Isi Piringku untuk Menjaga Gizi Seimbang", *Jurnal Pengabdian Magister Pendidikan IPA*,

- Vol. 6 No. 3, pp. 705–709, doi: 10.29303/jpmppi.v6i3.5186.
- Lenni, L., Suhardiyanto, H., Seminar, K.B. and Setiawan, R.P.A. (2020), “Development of a control system for lettuce cultivation in floating raft hydroponics”, *IOP Conference Series: Earth and Environmental Science*, Institute of Physics Publishing, Vol. 542 No. 1, p. 012067, doi: 10.1088/1755-1315/542/1/012067.
- Leo, R. and Daulay, A.S. (2022), “Penentuan Kadar Vitamin C Pada Minuman Bervitamin Yang Disimpan Pada Berbagai Waktu Dengan Metode Spektrofotometri UV”, *Journal of Health and Medical Science*, Vol. 1 No. 2, pp. 105–115.
- Leong, Y.S., Ker, P.J., Jamaludin, M.Z., Nomanbhay, S.M., Ismail, A., Abdullah, F., Looe, H.M., *et al.* (2018), “UV-Vis Spectroscopy: A New Approach for Assessing the Color Index of Transformer Insulating Oil”, *Sensors*, Multidisciplinary Digital Publishing Institute, Vol. 18 No. 7, pp. 1–15, doi: 10.3390/S18072175.
- Li, Y.R. and Zhu, H. (2021), “Vitamin C for sepsis intervention: from redox biochemistry to clinical medicine”, *Molecular and Cellular Biochemistry*, Springer, Vol. 476 No. 12, pp. 4449–4460, doi: 10.1007/s11010-021-04240-z.
- Lindblad, M., Tveden-Nyborg, P. and Lykkesfeldt, J. (2013), “Regulation of vitamin C homeostasis during deficiency”, *Nutrients*, Nutrients, Vol. 5 No. 8, pp. 2860–2879, doi: 10.3390/NU5082860.
- Lindström, K. and Mousavi, S.A. (2020), “Effectiveness of nitrogen fixation in rhizobia”, *Microbial Biotechnology*, John Wiley & Sons, Ltd, Vol. 13 No. 5, pp. 1314–1335, doi: 10.1111/1751-7915.13517.
- Listiana, E., Mustapa, R., Kohongia, A., Parisa, S. and Nusi, D.P. (2022), “PENGARUH PROSES PENGOLAHAN TERHADAP KERUSAKAN VITAMIN C SAYUR DAUN SINGKONG”, *Prosiding Seminar Nasional Mini Riset Mahasiswa*, Vol. 1, Gorontalo, pp. 1–5.
- Liu, H., Wang, Z., Xu, W., Zeng, J., Li, L., Li, S. and Gao, Z. (2020), “*Bacillus pumilus* LZP02 promotes rice root growth by improving carbohydrate metabolism and phenylpropanoid biosynthesis”, *Molecular Plant-Microbe Interactions*, American Phytopathological Society, Vol. 33 No. 10, pp. 1222–1231, doi: 10.1094/MPMI-04-20-0106-R.
- Lykkesfeldt, J. and Tveden-Nyborg, P. (2019), “The Pharmacokinetics of Vitamin C”, *Nutrients*, Multidisciplinary Digital Publishing Institute, Vol. 11 No. 10, p. 2412, doi: 10.3390/NU11102412.
- Ma, D., Guo, Y., Ali, I., Lin, J., Xu, Y. and Yang, M. (2024), “Accumulation characteristics of plant flavonoids and effects of cultivation measures on their biosynthesis: A review”, *Plant Physiology and Biochemistry*, Elsevier Masson s.r.l., Vol. 215, pp. 1–15, doi: 10.1016/j.plaphy.2024.108960.
- Ma, D., Reichelt, M., Yoshida, K., Gershenzon, J. and Constabel, C.P. (2018), “Two R2R3-MYB proteins are broad repressors of flavonoid and phenylpropanoid metabolism in poplar”, *Plant Journal*, Blackwell Publishing Ltd, Vol. 96 No. 5, pp. 949–965, doi: 10.1111/tpj.14081.
- Madhujith, T. and Wedamulla, N. (2020), “Functional Foods and Health”, *Agricultural Research for Sustainable Food Systems in Sri Lanka: Volume 2: A Pursuit for Advancements*, Springer Singapore, Vol. 2, pp. 301–329, doi: 10.1007/978-981-15-3673-1\_14.

- Maffei, D.F., Silveira, M.A., da Silva, M.B.R., Moreira, D.A., Lourenço, F.R., Schaffner, D.W. and Franco, B.D.G. de M. (2020), "Consumption data and consumer handling practices of leafy greens in the city of São Paulo, Brazil: Useful information for quantitative microbiological consumer phase risk assessments", *Food Protection Trends*, International Association for Food Protection, Vol. 40 No. 4, pp. 224–231.
- Mahanani, A.P., Verawati, L.Q.A. and Wiendi, N.M.A. (2020), "Optimalisasi Pengembangan Pertanian Modern melalui Program "Ngariung Tani" (Studi Kasus: Desa Sindangsari, Kecamatan Ciranjang, Kabupaten Cianjur)", *Jurnal Pusat Inovasi Masyarakat*, Vol. 2 No. 3, pp. 348–352.
- Martínez-Sánchez, A., Tudela, J.A., Luna, C., Allende, A. and Gil, M.I. (2011), "Low oxygen levels and light exposure affect quality of fresh-cut Romaine lettuce", *Postharvest Biology and Technology*, Vol. 59 No. 1, pp. 34–42, doi: 10.1016/j.postharvbio.2010.07.005.
- Martirosyan, D., Lampert, T. and Ekblad, M. (2022), "Classification and regulation of functional food proposed by the Functional Food Center", *Functional Food Science*, Functional Food Institute, Vol. 2 No. 2, pp. 25–46, doi: 10.31989/FFS.V2I2.890.
- Martirosyan, G., Sargsyan, G., Sarikyan, K., Adjemyan, G., Hakobyan, A., Avagyan, A., Tadevosyan, L., *et al.* (2024), "Impact of green manure plants on the yield and bioactive compounds content of lettuce", *Bioactive Compounds in Health and Disease*, Functional Food Institute, Vol. 7 No. 9, pp. 457–466, doi: 10.31989/bchd.v7i9.1431.
- Medina-Lozano, I., Bertolín, J.R. and Díaz, A. (2024), "Impact of drought stress on vitamin C and anthocyanin content in cultivated lettuces (*Lactuca sativa* L.) and wild relatives (*Lactuca* spp.)", *Frontiers in Plant Science*, Frontiers Media SA, Vol. 15, p. 1369658, doi: 10.3389/FPLS.2024.1369658/PDF.
- Mehmood, T., Li, G., Anjum, T. and Akram, W. (2021), "Azospirillum lipoferum strain AL-3 reduces early blight disease of potato and enhance yield", *Crop Protection*, Elsevier, Vol. 139, p. 105349, doi: 10.1016/J.CROPRO.2020.105349.
- Modu, F., Adam, A., Aliyu, F., Mabu, A. and Musa, M. (2020), "A survey of smart hydroponic systems", *Advances in Science, Technology and Engineering Systems*, ASTES Publishers, Vol. 5 No. 1, pp. 233–248, doi: 10.25046/aj050130.
- Mohamed, M.H.M. and Zewail, R.M.Y. (2016), "Partial and Full Substitution of Chemical Fertilizer by Organic Fertilizer in Presence of Bio Fertilizer and Seaweed Extract and Its Influences on Productivity and Quality of Head Lettuce Plants", *Journal of Plant Production*, Mansoura University, Faculty of Agriculture, Vol. 7 No. 6, pp. 545–552, doi: 10.21608/JPP.2016.45479.
- Monisha, K., Kalai Selvi, H., Sivanandhini, P., Sona Nachammai, A., Anuradha, C.T., Rama Devi, S., Kavitha Sri, A., *et al.* (2023), "Hydroponics agriculture as a modern agriculture technique", *Journal of Achievements in Materials and Manufacturing Engineering*, International OCSCO World Press, Vol. 116 No. 1, pp. 25–35, doi: 10.5604/01.3001.0016.3395.
- Montgomery, D.R. and Biklé, A. (2021), "Soil Health and Nutrient Density: Beyond Organic vs. Conventional Farming", *Frontiers in Sustainable*

- Food Systems*, Frontiers Media S.A., Vol. 5, p. 699147, doi: 10.3389/FSUFS.2021.699147/BIBTEX.
- Moon, S., Hur, O., Kim, S.H., Lee, Y., Oh, H., Yi, J., Ko, H.C., *et al.* (2024), "Genetic Diversity and Evaluation of Agro-Morphological Traits in Lettuce Core Collection", *Plants*, Multidisciplinary Digital Publishing Institute (MDPI), Vol. 13 No. 24, pp. 1–16, doi: 10.3390/plants13243552.
- Murray, J.J., Latimer, S.R., Simonne, A.H., Basset, G.J., Hochmuth, R.C. and Sandoya, G. V. (2023), "Tocopherols, Phylloquinone, Ascorbic Acid, and Sugar Contents in Hydroponically Grown Lettuce", *Journal of the American Society for Horticultural Science*, American Society for Horticultural Science, Vol. 148 No. 3, pp. 134–147, doi: 10.21273/JASHS05298-23.
- Muscoło, A., Marra, F., Canino, F., Maffia, A., Mallamaci, C. and Russo, M. (2022), "Growth, nutritional quality and antioxidant capacity of lettuce grown on two different soils with sulphur-based fertilizer, organic and chemical fertilizers", *Scientia Horticulturae*, Elsevier, Vol. 305, p. 111421, doi: 10.1016/J.SCIENTA.2022.111421.
- Napolitano, A. and Chool Boo, Y. (2022), "Ascorbic Acid (Vitamin C) as a Cosmeceutical to Increase Dermal Collagen for Skin Antiaging Purposes: Emerging Combination Therapies", *Antioxidants 2022*, Vol. 11, Page 1663, Multidisciplinary Digital Publishing Institute, Vol. 11 No. 9, p. 1663, doi: 10.3390/ANTIOX11091663.
- Narayani, K.B., Triloka, N.M.K. and Rianti, E.D.D. (2022), "Tingkat Pengetahuan Masyarakat Mengenai Konsumsi Vitamin C Dan D Guna Meningkatkan Sistem Imunitas Di Masa Pandemi Covid-19", *BIOSAPPHIRE: Jurnal Biologi Dan Diversitas*, Universitas PGRI Argopuro Jember, Vol. 1 No. 2, pp. 42–52, doi: 10.31537/BIOSAPPHIRE.V1I2.687.
- Nastia, S., Arsid, A. and Hardin, L. (2024), "Sosialisasi Konsumsi Pangan Berbasis B2SA (Beragam, Bergizi, Seimbang Dan Aman) Bagi Ibu PKK Kabupaten Buton Selatan", *Jurnal Pengabdian Sosial*, Vol. 1 No. 12, pp. 2305–2310, doi: 10.59837/A43RZ756.
- Nazir, M., Arif, S., Khan, R.S., Nazir, W., Khalid, N. and Maqsood, S. (2019), "Opportunities and challenges for functional and medicinal beverages: Current and future trends", *Trends in Food Science & Technology*, Elsevier, Vol. 88, pp. 513–526, doi: 10.1016/J.TIFS.2019.04.011.
- Negrão, L.D., Sousa, P.V. de L., Barradas, A.M., Brandão, A. de C.A.S., Araújo, M.A. da M. and Moreira-Araújo, R.S.D.R. (2021), "Bioactive compounds and antioxidant activity of crisphead lettuce (*Lactuca sativa* L.) of three different cultivation systems", *Food Science and Technology (Brazil)*, Sociedade Brasileira de Ciencia e Tecnologia de Alimentos, SBCTA, Vol. 41 No. 2, pp. 365–370, doi: 10.1590/fst.04120.
- Noumedem, J.A.K., Djeussi, D.E., Hritcu, L., Mihasan, M. and Kuete, V. (2017), "Lactuca sativa", *Medicinal Spices and Vegetables from Africa: Therapeutic Potential Against Metabolic, Inflammatory, Infectious and Systemic Diseases*, Academic Press, pp. 437–449, doi: 10.1016/B978-0-12-809286-6.00020-0.
- Nouri, M.Z., Moumeni, A. and Komatsu, S. (2015), "Abiotic stresses: Insight into gene regulation and protein expression in photosynthetic pathways of plants", *International Journal of Molecular Sciences*, MDPI AG, Vol.

16 No. 9, pp. 20392–20416, doi: 10.3390/ijms160920392.

- Novia, Y., Ezward, C. and Seprido, S. (2023), "PERTUMBUHAN DAN HASIL TANAMAN SELADA (*Lactuca Sativa* L) PADA BERBAGAI KONSENTRASI NUTRISI AB MIX DENGAN SISTEM HIDROPONIK NUTRIENT FILM TECHNIQUE (NFT)", *GREEN SWARNADWIPA : JURNAL PENGEMBANGAN ILMU PERTANIAN*, Vol. 12 No. 2, pp. 342–349.
- Nurhasan, M., Ariesta, D.L., Utami, M.M.H., Fahim, M., Aprillyana, N., Maulana, A.M. and Ickowitz, A. (2024), "Dietary transitions in Indonesia: the case of urban, rural, and forested areas", *Food Security*, Springer Science and Business Media B.V., Vol. 16 No. 6, pp. 1313–1331, doi: 10.1007/s12571-024-01488-3.
- Nursyahid, A., Setyawan, T.A., Sa'diyah, K., Wardihani, E.D., Helmy, H. and Hasan, A. (2021), "Analysis of Deep Water Culture (DWC) hydroponic nutrient solution level control systems", *IOP Conference Series: Materials Science and Engineering*, Vol. 1108, IOP Publishing, p. 012032, doi: 10.1088/1757-899X/1108/1/012032.
- Obmann, A., Purevsuren, S., Zehl, M., Kletter, C., Reznicek, G., Narantuya, S. and Glasl, S. (2012), "HPLC Determination of Flavonoid Glycosides in Mongolian *Dianthus versicolor* Fisch. (Caryophyllaceae) Compared with Quantification by UV Spectrophotometry", *Phytochemical Analysis*, John Wiley & Sons, Ltd, Vol. 23 No. 3, pp. 254–259, doi: 10.1002/PCA.1351.
- Ojo, O.O., Zigan, S., Orchard, J. and Shah, S. (2019), "Advanced technology integration in food manufacturing supply chain environment: Pathway to sustainability and companies' prosperity", *2019 IEEE Technology and Engineering Management Conference, TEMSCON 2019*, Institute of Electrical and Electronics Engineers Inc., Atlanta, pp. 1–7, doi: 10.1109/TEMSCON.2019.8813713.
- Omoboyede, V., Onile, O.S., Oyeyemi, B.F., Aruleba, R.T., Fadahunsi, A.I., Oke, G.A., Onile, T.A., *et al.* (2024), "Unravelling the anti-inflammatory mechanism of *Allium cepa*: an integration of network pharmacology and molecular docking approaches", *Molecular Diversity*, Springer Nature, Vol. 28 No. 2, pp. 727–747, doi: 10.1007/s11030-023-10614-w.
- Ortiz, A. and Sansinenea, E. (2023), "Phenylpropanoid Derivatives and Their Role in Plants' Health and as antimicrobials", *Current Microbiology*, Springer, Vol. 80 No. 12, p. 380, doi: 10.1007/s00284-023-03502-x.
- Ozdemir, Y., Polat, Z., Ozkan, M. and Kosti, R.I. (2016), "Effects of Selected Bio-Fungicide and Fungicide Treatments on Shelf Life and Quality Characteristics of Romaine Lettuce (*Lactuca Sativa* L.)", *Journal of Food Quality*, Blackwell Publishing Ltd, Vol. 39 No. 1, pp. 25–35, doi: 10.1111/JFQ.12174;JOURNAL:JOURNAL:17454557;REQUESTEDJOURNAL:JOURNAL:17454557;WGROU:STRING:PUBLICATION.
- Paciolla, C., Fortunato, S., Dipierro, N., Paradiso, A., De Leonardis, S., Mastropasqua, L. and de Pinto, M.C. (2019), "Vitamin C in Plants: From Functions to Biofortification", *Antioxidants*, MDPI, Vol. 8 No. 11, p. 519, doi: 10.3390/ANTIOX8110519.
- Panche, A.N., Diwan, A.D. and Chandra, S.R. (2016), "Flavonoids: an overview", *Journal of Nutritional Science*, Cambridge University Press, Vol. 5, pp. 1–15, doi: 10.1017/JNS.2016.41.

- Park, T., Fischer, S., Lambert, C., Hilger, T., Jordan, I. and Cadisch, G. (2023), "Combined Effects of Drought and Soil Fertility on the Synthesis of Vitamins in Green Leafy Vegetables", *Agriculture (Switzerland)*, MDPI, Vol. 13 No. 5, p. 984, doi: 10.3390/AGRICULTURE13050984/S1.
- Patel, A., Charan, K.S., Sharma, K., Bhagat, P. and Gururaj, C. (2024), "Hydroponic farming for sustainable agricultural practices in urban environments", *Sustainability Principles and Applications in Engineering Practice*, Nova Science Publishers, Inc., pp. 129–150.
- Patibandla, R.S.M.L., Rao, B.T. and Malla, R.M. (2024), "Precision Agriculture and AI Nurturing Sustainable Food Ecosystems", *AI in Agriculture for Sustainable and Economic Management*, CRC Press, pp. 78–91, doi: 10.1201/9781003451648-7.
- Pavón, J.M.C., De Torres, A.G. and Alonso, E.I.V. (2015), "Determination of antioxidant activity by fia and microplates", *Flow Injection Analysis of Food Additives*, CRC Press, pp. 639–656, doi: 10.1201/b19644.
- Perdana, A.L. and Suharni, S. (2022), "PENERAPAN HIDROPONIK SISTEM NUTRIENT FILM TECHNIQUE (NFT) DI SMAN 16 GOWA", *Community Development Journal: Jurnal Pengabdian Masyarakat*, Universitas Pahlawan Tuanku Tambusai, Vol. 3 No. 2, pp. 756–761, doi: 10.31004/CDJ.V3I2.4636.
- Perdana, T., Handayati, Y., Hermiatin, F.R. and Bafdal, N. (2019), "Customer readiness in emerging market towards vegetable factories", *International Journal on Advanced Science, Engineering and Information Technology*, Insight Society, Vol. 9 No. 6, pp. 2015–2020, doi: 10.18517/ijaseit.9.6.10087.
- Priyatnasari, N.S., Palupi, E., Kamila, F., Ardhiani, K.R., Khalisah, Pilyadi, G.T. and Iwansyah, A.C. (2024), "Meat-analog made from Javanese Grasshopper, kidney beans, and elephant foot yam as a high-protein and low-cholesterol product", *Journal of Agriculture and Food Research*, Elsevier B.V., Vol. 16, doi: 10.1016/j.jafr.2024.101071.
- Protsenko, M.A. and Kostina, N.E. (2016), "Elaboration and validation of methods for quantitative analysis of phenolic compounds and flavonoids in the extracts of higher fungi", *Russian Journal of Bioorganic Chemistry*, Maik Nauka Publishing / Springer SBM, Vol. 42 No. 7, pp. 756–763, doi: 10.1134/S1068162016070116.
- Psodorov, D.D., Gagić, S.M. and Jovičić, A.D. (2012), "The importance of functional food in human nutrition and comparison with conventional products", *CEFood 2012 - Proceedings of 6th Central European Congress on Food*, University of Novi Sad, Faculty of Technology, pp. 268–273.
- Pujiwati, I., Agisimanto, D., Saputra, R.B., Rosyidah, A. and Yulianti, F. (2024), "Fermented lettuce waste as an organic nutritional supplement of synthetic fertilizer in hydroponic production of Archivel lettuce", *Ciência e Agrotecnologia*, Editora da Universidade Federal de Lavras, Vol. 48, pp. 1–9, doi: 10.1590/1413-7054202448019924.
- Qian, J., Shimotori, K., Liu, X., Ban, S., Akizuki, S. ichi, Fujiwara, M., Kodera, T., *et al.* (2021), "Enhancement of algal growth by Mg<sup>2+</sup> released from anaerobic digestion effluent of aquatic macrophytes through photolysis", *Biochemical Engineering Journal*, Elsevier B.V., Vol. 172, p. 108065, doi: 10.1016/j.bej.2021.108065.

- Quek, S.Y., Chen, Q. and Shi, J. (2015), "Microencapsulation of Food Ingredients for Functional Foods", *Functional Food Ingredients and Nutraceuticals: Processing Technologies, Second Edition*, CRC Press, pp. 267–318, doi: 10.1201/b19426-18.
- Qulfatin, T.I.N., Aziez, A.F., Suprapti, E. and Sari, S.M. (2024), "KONTRIBUSI BAKTERI ENDOFIT TERHADAP PENEKANAN SERANGAN HAMA, PERTUMBUHAN DAN PRODUKTIVITAS PADI DI LAHAN SAWAH TADAH HUJAN", *Jurnal Ilmiah Hijau Cendekia*, Vol. 9 No. 1, pp. 59–64, doi: 10.32503/HIJAU.V9I1.3417.
- Rahayu, Y.Y.S., Sujarwo, W., Irsyam, A.S.D., Dwiartama, A. and Rosleine, D. (2024), "Exploring unconventional food plants used by local communities in a rural area of West Java, Indonesia: ethnobotanical assessment, use trends, and potential for improved nutrition", *Journal of Ethnobiology and Ethnomedicine*, BioMed Central Ltd, Vol. 20 No. 1, p. 68, doi: 10.1186/s13002-024-00710-y.
- Rajendran, S., Domalachenpa, T., Arora, H., Li, P., Sharma, A. and Rajauria, G. (2024), "Hydroponics: Exploring innovative sustainable technologies and applications across crop production, with Emphasis on potato mini-tuber cultivation", *Heliyon*, Elsevier, Vol. 10 No. 5, p. e26823, doi: 10.1016/J.HELIYON.2024.E26823.
- Raman, M., Ambalam, P. and Doble, M. (2019), "Probiotics, prebiotics, and fibers in nutritive and functional beverages", *Nutrients in Beverages: Volume 12: The Science of Beverages*, Elsevier, pp. 315–367, doi: 10.1016/B978-0-12-816842-4.00009-5.
- Rasouli, F., Amini, T., Asadi, M., Hassanpouraghdam, M.B., Aazami, M.A., Ercisli, S., Skrovankova, S., *et al.* (2022), "Growth and Antioxidant Responses of Lettuce (*Lactuca sativa* L.) to Arbuscular Mycorrhiza Inoculation and Seaweed Extract Foliar Application", *Agronomy* 2022, Vol. 12, Page 401, Multidisciplinary Digital Publishing Institute, Vol. 12 No. 2, p. 401, doi: 10.3390/AGRONOMY12020401.
- Rempelos, L., Baranski, M., Wang, J., Adams, T.N., Adebusuyi, K., Beckman, J.J., Brockbank, C.J., *et al.* (2021), "Integrated soil and crop management in organic agriculture: A logical framework to ensure food quality and human health?", *Agronomy*, MDPI, Vol. 11 No. 12, p. 2494, doi: 10.3390/agronomy11122494.
- Rijk Zwaan. (2025), "ARCHIVEL RZ (41-428) - Lettuce | Rijk Zwaan South Africa", available at: <https://www.rijkszwaan.co.za/lettuce/ARCHIVEL-RZ-41-428-prdLS10858-ctgCrops.lettuce> (accessed 24 May 2025).
- Rocha, F.S., Gomes, A.J., Lunardi, C.N., Kaliaguine, S. and Patience, G.S. (2018), "Experimental methods in chemical engineering: Ultraviolet visible spectroscopy—UV-Vis", *The Canadian Journal of Chemical Engineering*, John Wiley & Sons, Ltd, Vol. 96 No. 12, pp. 2512–2517, doi: 10.1002/CJCE.23344.
- Saaid, M.F., Yahya, N.A.M., Noor, M.Z.H. and Ali, M.S.A.M. (2013), "A development of an automatic microcontroller system for Deep Water Culture (DWC)", *Proceedings - 2013 IEEE 9th International Colloquium on Signal Processing and Its Applications, CSPA 2013*, pp. 328–332, doi: 10.1109/CSPA.2013.6530066.
- Safnowandi, S. (2022), "Pemanfaatan Vitamin C Alami sebagai Antioksidan pada Tubuh Manusia", *Biocaster: Jurnal Kajian Biologi*, Lembaga

- Penelitian dan Pemberdayaan Masyarakat - LITPAM, Vol. 2 No. 1, pp. 1–8, doi: 10.36312/BJKB.V2I1.43.
- Sahari, M.A. and Ardestani, S.B. (2015), “Bio-antioxidants activity: Their mechanisms and measurement methods”, *Applied Food Biotechnology*, National Nutrition and Food Technology Research Institute, Vol. 2 No. 1, pp. 3–8, doi: 10.22037/afb.v2i1.7747.
- Saidi, I.A., Azara, R., Ramadhani, S. and Yanti, E. (2022), *Nutrisi Dan Komponen Bioaktif Pada Sayuran Daun*, Umsida Press, Umsida Press, doi: 10.21070/2022/978-623-464-017-5.
- Sammani, M.S., Clavijo, S. and Cerdà, V. (2021), “Recent, advanced sample pretreatments and analytical methods for flavonoids determination in different samples”, *TrAC - Trends in Analytical Chemistry*, Elsevier B.V., Vol. 138, p. 116220, doi: 10.1016/j.trac.2021.116220.
- Sánchez Rojas, F., Bosch Ojeda, C. and Cano Pavón, J.M. (2019), “Spectrophotometry | biochemical applications”, *Encyclopedia of Analytical Science*, Elsevier, pp. 205–213, doi: 10.1016/B978-0-12-409547-2.00501-1.
- Sanjay, K.V. (2020), “Comparative analysis of vitamin-C content from locally available fruits and vegetables”, *Plant Archives*, Plant Archives, Vol. 20 No. 1, pp. 1944–1946.
- Sarma, M., Nanere, M. and Trebilcock, P. (2020), “Pricing strategies for organic vegetables based on Indonesian consumer willingness to pay”, *Management Science Letters*, Growing Science, Vol. 10 No. 14, pp. 3253–3264, doi: 10.5267/J.MSL.2020.6.013.
- Selvamary, V.N., Brundha, M.P. and Smiline Girija, A.S. (2020), “Role of Vitamin C in immune function of human body”, *Indian Journal of Forensic Medicine and Toxicology*, Institute of Medico-Legal Publications, Vol. 14 No. 4, pp. 5093–5099, doi: 10.37506/ijfmt.v14i4.12429.
- Setyaningrum, E., Fitriana, A.S. and Samodra, G. (2021), “Pengaruh Metode Pengeringan terhadap Kadar Flavonoid Total dan Aktivitas Antioksidan pada Ekstrak Daun Seledri (*Apium Graveolens* L)”, *Seminar Nasional Penelitian Dan Pengabdian Kepada Masyarakat*, pp. 504–510.
- Seufert, V. and Ramankutty, N. (2017), “Many shades of gray—the context-dependent performance of organic agriculture”, *Science Advances*, American Association for the Advancement of Science, Vol. 3 No. 3, doi: 10.1126/SCIADV.1602638.
- Sharaa, I. El and Mussa, S.A. Ben. (2019), “Determination of Vitamin C (Ascorbic Acid) Contents in Vegetable Samples by UV-Spectrophotometry and Redox Titration Methods and Estimation the Effect of Time, Cooking and Frozen on Ascorbic Acid Contents”, *International Journal of Progressive Sciences and Technologies*, Vol. 15 No. 2, pp. 281–293, doi: 10.52155/ijpsat.v15.2.1144.
- Sharma, A., Hazarika, M., Heisnam, P., Pandey, H., Devadas, V.S. and Wangsu, M. (2024), “Controlled Environment Ecosystem: A plant growth system to combat climate change through soilless culture”, *Crop Design*, Elsevier, Vol. 3 No. 1, p. 100044, doi: 10.1016/J.CROPD.2023.100044.
- Sharma, A., Kumar, V., Shahzad, B., Ramakrishnan, M., Singh Sidhu, G.P., Bali, A.S., Handa, N., *et al.* (2020), “Photosynthetic Response of Plants Under Different Abiotic Stresses: A Review”, *Journal of Plant Growth Regulation*, Springer, Vol. 39 No. 2, pp. 509–531, doi: 10.1007/s00344-

019-10018-x.

- Sharma, L. and Yadav, A. (2022), "Role of Functional Foods in Human Health and Disease Prevention", *Bioactive Components: A Sustainable System for Good Health and Well-Being*, Springer Nature, pp. 225–243, doi: 10.1007/978-981-19-2366-1\_14.
- Shen, N., Wang, T., Gan, Q., Liu, S., Wang, L. and Jin, B. (2022), "Plant flavonoids: Classification, distribution, biosynthesis, and antioxidant activity", *Food Chemistry*, Elsevier, Vol. 383, pp. 1–13, doi: 10.1016/J.FOODCHEM.2022.132531.
- Shi, M., Gu, J., Wu, H., Rauf, A., Emran, T. Bin, Khan, Z., Mitra, S., *et al.* (2022), "Phytochemicals, Nutrition, Metabolism, Bioavailability, and Health Benefits in Lettuce—A Comprehensive Review", *Antioxidants 2022, Vol. 11, Page 1158*, Multidisciplinary Digital Publishing Institute, Vol. 11 No. 6, p. 1158, doi: 10.3390/ANTIOX11061158.
- Shinwari, K.J. and Rao, P.S. (2018), "Stability of bioactive compounds in fruit jam and jelly during processing and storage: A review", *Trends in Food Science & Technology*, Elsevier, Vol. 75, pp. 181–193, doi: 10.1016/J.TIFS.2018.02.002.
- Silva, A.L., Da Silva, Q.G., Kubota, L.T. and Tanaka, A.T. (2015), "Determina $\text{\c{c}}\tilde{\text{o}}$  de catequinas por eletrodo de carbono impresso modificado com nanotubo de carbono funcionalizado", *Ecletica Quimica*, Atlantis Livros Ltda., Vol. 40 No. 1, pp. 52–61, doi: 10.26850/1678-4618EQJ.V40.1.2015.P52-61.
- Simko, I. (2023), "Dataset on the single nucleotide variation in diversity panel of 500 lettuce accessions genotyped with tunable genotyping-by-sequencing (tGBS) method", *Data in Brief*, Elsevier Inc., Vol. 49, pp. 1–6, doi: 10.1016/j.dib.2023.109419.
- Singh, J. (2023), "Bioactive Nutrients in Vegetables for Human Nutrition and Health", *Vegetables for Nutrition and Entrepreneurship*, Springer Nature, pp. 57–72, doi: 10.1007/978-981-19-9016-8\_3.
- Singh, J., Jayaprakasha, G.K. and Patil, B.S. (2018), "Extraction, identification, and potential health benefits of spinach flavonoids: A review", *ACS Symposium Series*, American Chemical Society, Vol. 1286, pp. 107–136, doi: 10.1021/BK-2018-1286.CH006.
- Singh, N., Sharma, S., Dhakad, S.R.G.G.S. and Rao, S.K. (2024), "Fatty Acid Profile of Milk of Various Indigenous Cattle Breeds in Hot-Arid Region of Rajasthan", *Indian Journal of Animal Production and Management*, ACS Publisher, Vol. 40 No. 2, pp. 63–69, doi: 10.48165/ijapm.2024.40.2.1.
- Solis, E.S. and Magaret, J. (2022), "Lettuce (*Lactuca sativa* L. var. Rincon) Production Using Organic Nutrient Solution under Hydroponics System", *American Journal of Agricultural Science, Engineering and Technology*, E-palli, Vol. 6 No. 3, pp. 24–32, doi: 10.54536/AJASET.V6I3.705.
- Suarsana, M., Parmila, I.P. and Gunawan, K.A. (2019), "PENGARUH KONSENTRASI NUTRISI AB MIX TERHADAP PERTUMBUHAN DAN HASIL SAWI PAKCOY (*Brassica Rapa* L.) DENGAN HIDROPONIK SISTEM SUMBU (WICK SYSTEM)", *Agro Bali: Agricultural Journal*, Universitas Panji Sakti, Vol. 2 No. 2, pp. 98–105, doi: 10.37637/AB.V2I2.393.
- Sudarmadji, S., Haryono, B. and Suhardi. (2010), *Analisa Bahan Makanan Dan Pertanian*, 2nd ed., Liberty, Yogyakarta.

- Sultana, S., Hossain, M.L., Sostaric, T., Lim, L.Y., Foster, K.J. and Locher, C. (2024), "Investigating Flavonoids by HPTLC Analysis Using Aluminium Chloride as Derivatization Reagent", *Molecules*, Multidisciplinary Digital Publishing Institute (MDPI), Vol. 29 No. 21, p. 5161, doi: 10.3390/MOLECULES29215161/S1.
- Sun-Waterhouse, D. (2011), "The development of fruit-based functional foods targeting the health and wellness market: a review", *International Journal of Food Science and Technology*, Oxford Academic, Vol. 46 No. 5, pp. 899–920, doi: 10.1111/J.1365-2621.2010.02499.X.
- Suphaskuldamrong, W., Gan, C. and Cohen, D.A. (2021), "Consumers' Risk Perceptions, Risk Reduction Strategies and Willingness to Pay Premium Prices for Organic Products", *6th International Conference on Business and Industrial Research, ICBIR 2021 - Proceedings*, Institute of Electrical and Electronics Engineers Inc., pp. 31–36, doi: 10.1109/ICBIR52339.2021.9465861.
- Suroso, A., Firdaus, M. and Savitri, D. (2014), "Demand for the main vegetables in Java Island", *Journal of the International Society for Southeast Asian Agricultural Sciences*, International Society for Southeast Asian Agricultural Sciences, Vol. 20 No. 2, pp. 98–109.
- Syed, A.U.A., Khan, Z.A., Chattha, S.H., Shaikh, I.A., Ali, M.N.H.A., Bughio, Z.U.R., Dahri, S.H., *et al.* (2021), "Comparative Assessment of Hydroponic and Geoponic Cultivation Systems for Sustainable Spinach Cultivation", *Pakistan Journal of Agricultural Research*, ResearchersLinks Ltd, Vol. 34 No. 4, pp. 678–688, doi: 10.17582/JOURNAL.PJAR/2021/34.4.678.688.
- Szekely, I., Zeaiter, Z. and Jijakli, M.H. (2023), "Development of a Simple Bioponic Method Using Manure and Offering Comparable Lettuce Yield than Hydroponics", *Water (Switzerland)*, Multidisciplinary Digital Publishing Institute (MDPI), Vol. 15 No. 13, p. 2335, doi: 10.3390/w15132335.
- Tian, Y. and Deng, F. (2020), "Phytochemistry and biological activity of mustard (*Brassica juncea*): a review", *CyTA - Journal of Food*, Taylor & Francis, Vol. 18 No. 1, pp. 704–718, doi: 10.1080/19476337.2020.1833988.
- Tiruvaimozhi, Y. V., Varma, V. and Sankaran, M. (2018), "Nitrogen fixation ability explains leaf chemistry and arbuscular mycorrhizal responses to fertilization", *Plant Ecology*, Springer Science and Business Media B.V., Vol. 219 No. 4, pp. 391–401, doi: 10.1007/S11258-018-0803-9/FIGURES/3.
- Tobolka, A., Škorpilová, T., Beňo, F., Podskalská, T. and Rajchl, A. (2024), "Effect of Various Carbohydrates in Aqueous Solutions on Color Stability and Degradation Kinetics of Selected Anthocyanins During Storage", *Foods*, Multidisciplinary Digital Publishing Institute (MDPI), Vol. 13 No. 22, p. 3628, doi: 10.3390/FOODS13223628/S1.
- Topolska, K., Florkiewicz, A. and Filipiak-Florkiewicz, A. (2021), "Functional Food—Consumer Motivations and Expectations", *International Journal of Environmental Research and Public Health*, MDPI AG, Vol. 18 No. 10, pp. 1–14, doi: 10.3390/IJERPH18105327.
- Trinovita, Y., Mundriyastutik, Y., Fanani, Z. and Fitriyani, A.N. (2019), "EVALUASI KADAR FLAVONOID TOTAL PADA EKSTRAK ETANOL

DAUN SANGKETAN (*ACHYRANTHES ASPERA*) DENGAN SPEKTROFOTOMETRI”, *Indonesia Jurnal Farmasi*, Universitas Muhammadiyah Kudus, Vol. 4 No. 1, pp. 12–18, doi: 10.26751/IJF.V4I1.800.

- Tripp, E.A., Zhuang, Y., Schreiber, M., Stone, H. and Berardi, A.E. (2018), “Evolutionary and ecological drivers of plant flavonoids across a large latitudinal gradient”, *Molecular Phylogenetics and Evolution*, Academic Press Inc., Vol. 128, pp. 147–161, doi: 10.1016/j.ympev.2018.07.004.
- Tur, J.A. and Bibiloni, M.M. (2015), “Functional Foods”, *Encyclopedia of Food and Health*, Elsevier Inc., pp. 157–161, doi: 10.1016/B978-0-12-384947-2.00340-8.
- Ullah, A., Munir, S., Badshah, S.L., Khan, N., Ghani, L., Poulson, B.G., Emwas, A.H., *et al.* (2020), “Important flavonoids and their role as a therapeutic agent”, *Molecules*, MDPI AG, Vol. 25 No. 22, p. 5243, doi: 10.3390/molecules25225243.
- USDA. (2018), “Lettuce, cos or romaine, raw - Nutrients - SR Legacy | USDA FoodData Central”, available at: <https://fdc.nal.usda.gov/food-details/169247/nutrients> (accessed 6 April 2025).
- Vieira, A.C., Milani, G.V., de Lisboa, V.C.F., Menezes, C.J.F., Jorge, L.C.R. and Giglio, J.R. (2010), “Further insights toward vitamin c determination and stability. proposal of a new quantification method”, *Bioscience Journal*, Vol. 26 No. 2, pp. 296–304.
- Vignesh, A., Amal, T.C., Sarvalingam, A. and Vasanth, K. (2024), “A review on the influence of nutraceuticals and functional foods on health”, *Food Chemistry Advances*, Elsevier Ltd, Vol. 5, pp. 1–13, doi: 10.1016/j.focha.2024.100749.
- Vijay, V., VP, V., Vijayan, N., Vallikannan, B. and Perumal, M.K. (2021), “Nutritional and Anti-cancer Effects of Carotenoids from *Lactuca sativa*”, *Advances in Health and Disease*, Vol. 33, Nova Science Publishers, Inc., pp. 177–194.
- Villamil, R.A., Robelto, G.E., Mendoza, M.C., Guzmán, M.P., Cortés, L.Y., Méndez, C.A. and Giha, V. (2020), “Development and health implications of functional dairy food products: A review”, *Revista Chilena de Nutricion*, Sociedad Chilena de Nutricion Bromatologia y Toxilologica, Vol. 47 No. 6, pp. 1018–1028, doi: 10.4067/S0717-75182020000601018.
- Virk, H.K., Singh, G. and Kaur, R. (2024), “Recent Advances in Application of Biofertilizers in Pulses: A Review”, *Legume Research*, Agricultural Research Communication Centre, Vol. 47 No. 4, pp. 511–518, doi: 10.18805/LR-4808.
- Viviani, A., Fambrini, M., Giordani, T. and Pugliesi, C. (2021), “L-Ascorbic acid in plants: From biosynthesis to its role in plant development and stress response”, *Agrochimica*, University of Pisa, Vol. 65 No. 2, pp. 151–171, doi: 10.12871/00021857202124.
- Wambogo, E.A., Ansai, N., Ahluwalia, N. and Ogden, C.L. (2022), “The Contribution of Discrete Vegetables, Mixed Dishes, and Other Foods to Total Vegetable Consumption: US Ages 2 Years and Over, 2017-2018”, *Journal of the Academy of Nutrition and Dietetics*, Elsevier B.V., Vol. 122 No. 11, pp. 2115-2126.e2, doi: 10.1016/j.jand.2022.05.006.
- Wang, L., Xue, X., Li, Y., Li, F., Zhang, F. and Guo, W. (2015), “Effect of pH upper control limit on nutrient solution component and water spinach

- growth under hydroponics”, *Advance Journal of Food Science and Technology*, Maxwell Science Publications, Vol. 9 No. 9, pp. 717–721, doi: 10.19026/ajfst.9.1766.
- Wang, M., Ren, T., Huang, R., Li, Y., Zhang, C. and Xu, Z. (2021), “Overexpression of an *Apocynum venetum* flavonols synthetase gene confers salinity stress tolerance to transgenic tobacco plants”, *Plant Physiology and Biochemistry*, Elsevier Masson s.r.l., Vol. 162, pp. 667–676, doi: 10.1016/j.plaphy.2021.03.034.
- Wang, N., Qu, C., Jiang, S., Chen, Z., Xu, H., Fang, H., Su, M., *et al.* (2018), “The proanthocyanidin-specific transcription factor MdMYBPA1 initiates anthocyanin synthesis under low-temperature conditions in red-fleshed apples”, *The Plant Journal*, John Wiley & Sons, Ltd, Vol. 96 No. 1, pp. 39–55, doi: 10.1111/TPJ.14013.
- White, J.F., Kingsley, K.L., Zhang, Q., Verma, R., Obi, N., Dvinskikh, S., Elmore, M.T., *et al.* (2019), “Review: Endophytic microbes and their potential applications in crop management”, *Pest Management Science*, Pest Manag Sci, Vol. 75 No. 10, pp. 2558–2565, doi: 10.1002/PS.5527.
- Widyaningsih, T.D., Wijayanti, N. and Nugrahini, N.I.P. (2017), *Pangan Fungsional: Aspek Kesehatan, Evaluasi, Dan Regulasi*, edited by Estiasih, T., UB Press, Malang.
- Winahyu, D.A., Retnaningsih, A. and Aprillia, M. (2019), “PENETAPAN KADAR FLAVONOID PADA KULIT BATANG KAYU RARU(*Cotylelobiummelanoxylo*nP) DENGAN METODE SPEKTROFOTOMETRI UV-VIS”, *Jurnal Analis Farmasi*, Vol. 4 No. 1, pp. 29–36, doi: 10.33024/JAF.V4I1.1304.
- Wu, J., Lv, S., Zhao, L., Gao, T., Yu, C., Hu, J. and Ma, F. (2023), “Advances in the study of the function and mechanism of the action of flavonoids in plants under environmental stresses”, *Planta*, Springer, Vol. 257 No. 6, pp. 1–26, doi: 10.1007/S00425-023-04136-W.
- Wu, S. and Li, S. (2024), “Collaboration to Address the Challenges Faced by Smallholders in Practicing Organic Agriculture: A Case Study of the Organic Sorghum Industry in Zunyi City, China”, *Agriculture (Switzerland)*, Multidisciplinary Digital Publishing Institute (MDPI), Vol. 14 No. 5, doi: 10.3390/AGRICULTURE14050726.
- Yadav, P., Chauhan, A.K., Singh, R.B., Khan, S. and Halabi, G. (2021), “Organic acids: microbial sources, production, and applications”, *Functional Foods and Nutraceuticals in Metabolic and Non-Communicable Diseases*, Elsevier, pp. 325–337, doi: 10.1016/B978-0-12-819815-5.00053-7.
- Yang, J., Wang, A.Q., Li, X.J., Fan, X., Yin, S.S. and Lan, K. (2016), “A chemical profiling strategy for semi-quantitative analysis of flavonoids in Ginkgo extracts”, *Journal of Pharmaceutical and Biomedical Analysis*, Elsevier, Vol. 123, pp. 147–154, doi: 10.1016/J.JPBA.2016.02.017.
- Yang, T., Samarakoon, U. and Altland, J. (2024), “Growth, phytochemical concentration, nutrient uptake, and water consumption of butterhead lettuce in response to hydroponic system design and growing season”, *Scientia Horticulturae*, Elsevier, Vol. 332, p. 113201, doi: 10.1016/J.SCIENTA.2024.113201.
- Yang, X., Gil, M.I., Yang, Q. and Tomás-Barberán, F.A. (2022), “Bioactive compounds in lettuce: Highlighting the benefits to human health and

- impacts of preharvest and postharvest practices”, *Comprehensive Reviews in Food Science and Food Safety*, John Wiley and Sons Inc, Vol. 21 No. 1, pp. 4–45, doi: 10.1111/1541-4337.12877.
- Yaseen, A.A. and Mama, S.A. (2024), “Research comparing the nutritional content of organic and conventionally grown fruits and vegetables in relation to human health: review”, *Organic Agriculture*, Springer Science and Business Media B.V., Vol. 14 No. 4, pp. 481–502, doi: 10.1007/s13165-024-00477-2.
- Zahra, I.M. and Khasanah, D.A. (2024), “Implementasi Pola Makan Sehat Untuk Meningkatkan Nutrisi Anak Usia Dini di TK Manba’ul ‘Ulum Kota Pekalongan”, *SINAU Seminar Nasional Anak Usia Dini*, Vol. 1, pp. 798–807.
- Zaman, Q.U. (2023), “Precision agriculture technology: A pathway toward sustainable agriculture”, *Precision Agriculture: Evolution, Insights and Emerging Trends*, Elsevier, pp. 1–17, doi: 10.1016/B978-0-443-18953-1.00013-1.
- Zeipina, S., Lepse, L. and Alsina, I. (2016), “The effect of agroecological factors on yield and flavonoids content of globe artichoke”, *Research for Rural Development*, Vol. 1, Jelgava : Latvia University of Agriculture, pp. 37–42.
- Zhang, H., Lin, S., Xie, R., Zhong, W., Wang, H., Farag, M.A., Hussain, H., *et al.* (2024), “Thermal degradation of (2R, 3R)-dihydromyricetin in neutral aqueous solution at 100 °C”, *Food Chemistry*, Elsevier, Vol. 435, pp. 1–16, doi: 10.1016/J.FOODCHEM.2023.137560.
- Zhang, J., Wang, H., Ai, C., Lu, R., Chen, L., Xiao, J. and Teng, H. (2024), “Food matrix-flavonoid interactions and their effect on bioavailability”, *Critical Reviews in Food Science and Nutrition*, Taylor and Francis Ltd., Vol. 64 No. 30, pp. 11124–11145, doi: 10.1080/10408398.2023.2232880.
- Zhang, L., Su, W., Tao, R., Zhang, W., Chen, J., Wu, P., Yan, C., *et al.* (2017), “RNA sequencing provides insights into the evolution of lettuce and the regulation of flavonoid biosynthesis.”, *Nature Communications*, Nature Publishing Group, Vol. 8 No. 1, pp. 2264–2264, doi: 10.1038/S41467-017-02445-9.
- Zuhdi, F. (2021), “Peranan Sektor Pertanian terhadap Pertumbuhan Ekonomi Kabupaten Kampar”, *Jurnal Ekonomi Pertanian Dan Agribisnis*, Brawijaya University, Vol. 5 No. 1, pp. 274–285, doi: 10.21776/UB.JEPA.2021.005.01.25.