

## DAFTAR PUSTAKA

- Abu-salem, F. M., & Abou-arab, E. A. (2011). Physico-chemical properties of tempeh produced from chickpea seeds. *Journal of America Science*, 7(7), 107–118.
- Adebo, J. A., Njobeh, P. B., Gbashi, S., Oyedeji, A. B., Ogundele, O. M., Oyeyinka, S. A., & Adebo, O. A. (2022). *Fermentation of Cereals and Legumes : Impact on Nutritional Constituents and Nutrient Bioavailability*. 1–57.
- Andajani, W., & Sidhi, E. Y. (2019). Efisiensi Usahatani Kedelai Hitam melalui Pola Kemitraan dengan Koperasi. *Agrinika*, 3(2), 120–133.
- Astawan, M., Az, N., Yalmaida, Z., Damayanti, A. F., Putri, A., & Prayudani, G. (2025). Fermentation Improves Protein Content and Physicochemical Characteristics of Tempe Protein Concentrate Compared to Soy Protein. *Indonesian Food Science and Technology Journal*, 9(1), 82–88.
- Astawan, M., Rahmawati, I. S., Cahyani, A. P., Wresdiyati, T., Putri, S. P., & Fukusaki, E. (2020). Comparison Between the Potential of Tempe Flour Made from Germinated and Nongerminated Soybeans in Preventing Diabetes Mellitus. *HAYATI Journal of Biosciences*, 27(1), 16–23. <https://doi.org/10.4308/hjb.27.1.16>
- Barus, T., Titarsole, N. N., Mulyono, N., & Prasasty, V. D. (2019). Tempeh Antioxidant Activity using DPPH Method: Effects of Fermentation, Processing, and Microorganisms. *Journal of Food Engineering and Technology*, 8(2), 75–80.
- Chalid, A. I., Hanafi, Jahuddin, R., & Yasin. (2022). Analisis Karakter Agronomi Jagung Pulut dan Jagung Ungu Berdasarkan Sebaran Hotellings (Character Analysis of Specialty Corn Under Waxy and Anthocyanins). *Syntax Literate: Jurnal Ilmiah Indonesia*, 7(4), 4835–4843.
- Chaudhari, N., & Roper, S. D. (2022). Taste : from peripheral receptors to perception. *Curr Opin Physiol*, 21, 44–47. <https://doi.org/10.1016/j.cophys.2021.04.001>.Taste
- Chen, Z., Swisłocka, R., Choinska, R., Marszałek, K., Dabrowska, A., Lewandowski, W., & Lewandowska, H. (2024). Exploring the Correlation Between the Molecular Structure and Biological Activities of Metal – Phenolic Compound Complexes : Research and Description of the Role of Metal Ions in Improving the Antioxidant Activities of Phenolic Compounds. *International Journal of Molecular Sciences*, 25(11775), 1–20. <https://doi.org/https://doi.org/10.3390/ijms252111775>
- Choi, Y. M., Yoon, H., Lee, S., Ko, H. C., & Shin, M. J. (2020). Phenolic Content, and Antioxidant Activities of Black Soybeans (*Glycine max* (L.) Merrill) as Affected by Seed Weight. *Scientific Reports*, 10, 1–13. <https://doi.org/10.1038/s41598-020-76985-4>

- Dwianto, S. A., Meitiniarti, V. I., Binar, A., Sukmana, A., & Dewi, L. (2024). Penambahan Biji Chia ( *Salvia hispanica* L .) pada Fermentasi Tempe Kedelai dalam Peningkatan Aktivitas Antioksidan dan Nilai Kesukaan Addition of Chia Seeds ( *Salvia hispanica* L .) on Soybean Tempeh Fermentation in Increasing Antioxidant Activity and Pref. *Biota: Jurnal Imiah Ilmu-Ilmu Hayati*, 9(2), 155–163. <https://doi.org/10.24002/biota.v9i2.7828>
- Dwiyanti, H., Setyawati, R., & Krisnansari, D. (2019). Formulasi Minuman Fungsional Tinggi Antioksidan Berbasis Gula Kepala dengan Variasi Jenis dan Konsentrasi Ekstrak Rimpang. *Media Pertanian*, 4(2), 48–58.
- Enaru, B., Dret, G., Pop, T. D., & St̃, A. (2021). Anthocyanins : Factors Affecting Their Stability and Degradation. *Antioxidants*, 10(1967), 1–24. <https://doi.org/doi.org/10.3390/antiox10121967>
- Ervina, M., Nawu, Y., & Esar, S. (2016). Comparison of in vitro antioxidant activity of infusion, extract and fractions of Indonesian Cinnamon (*Cinnamomum burmannii*) bark. *International Food Research Journal*, 23(3), 1346–1350.
- Fernandes, A. S., Ferreira-Pego, C., & Costa, J. G. (2023). Functional Foods for Health: The Antioxidant and Anti-Inflammatory Role of Fruits, Vegetables and Culinary Herbs. *Foods*, 12(2743). <https://doi.org/https://doi.org/10.3390/foods12142742>
- García-barón, S. E., Carmona-escutia, R. P., Herrera-lópez, E. J., Leyva-trinidad, D. A., & Gschaedler-mathis, A. (2025). Consumers Drivers of Perception and Preference of Fermented Food Products and Beverages : A Systematic Review. *Foods*, 14(713), 1–25.
- Gonzalez-gongora, I., Taron-dunoyer, A., & Elena, S. (2025). Physicochemical and Technological Properties of the Starch from Corn (*Zea mays*) Variety P-7928. *Food and Nutrition Journal*, 13(1), 508–515.
- Górska, K., Pejcz, E., & Harasym, J. (2025). Tempeh and Fermentation — Innovative Substrates in a Classical Microbial Process. *Appl. Sci*, 15(8888), 1–24.
- Guillén-sánchez, J., Mori-arismendi, S., & Paucar-menacho, L. M. (2014). Characteristics and Functional Properties of Purple Corn (*Zea mays* L.) var. subnigroviolaceo. *Scintia Agropecuaria*, 5, 211–217. <https://doi.org/10.17268/sci.agropecu.2014.04.05>
- Handayani, A., & Rosidah. (2017). Analisis organoleptik pada pengembangan olahan pangan berbasis wortel di kelompok wanita tani di Desa Temanggung Kabupaten Magelang. *Jurnal Litbang Provinsi Jawa Tengah*, 15(2), 133–144.
- Handoyo, T., & Morita, N. (2007a). Structural and Functional Properties of Fermented Soybean ( Tempeh ) by Using *Rhizopus oligosporus*. *International Journal of Food Properties*, 9, 347–355. <https://doi.org/10.1080/10942910500224746>

- Handoyo, T., & Morita, N. (2007b). Structural and Functional Properties of Fermented Soybean (Tempeh) by Using *Rhizopus oligosporus*. *International Journal of Food Properties*, 9, 347–355. <https://doi.org/10.1080/10942910500224746>
- Harakotr, B., Suriharn, B., Tangwongchai, R., Scott, M. P., & Lertrat, K. (2014). Anthocyanins and antioxidant activity in coloured waxy corn at different maturation stages. *Journal of Functional Foods*, 9(1), 109–118. <https://doi.org/10.1016/j.jff.2014.04.012>
- Husain, S. S., & Murtaqi, A. (2022). Pengaruh Lama Fermentasi Terhadap Sifat Fisik dan Penerimaan Konsumen Tempe Jagung Pulut. *Journal of Agritech Science*, 6(2), 76–80.
- Jiang, L., Liu, Y., Li, L., Qi, B., Ju, M., & Xu, Y. (2019). Covalent conjugates of anthocyanins to soy protein : Unravelling their structure features and in vitro gastrointestinal digestion fate. *Food Research International*, 120(August 2018), 603–609. <https://doi.org/10.1016/j.foodres.2018.11.011>
- Kim, H. Y., Lee, K. Y., Kim, M., Hong, M., Deepa, P., & Kim, S. (2023). A Review of the Biological Properties of Purple Corn. *Scientia Pharmaceutica*, 91(6), 1–24.
- Lesschaeve, I., & Noble, A. C. (2005). Polyphenols : factors influencing their sensory properties and their effects on food and beverage preferences 1 – 3. *The American Journal of Clinical Nutrition*, 81(1), 330S-335S. <https://doi.org/10.1093/ajcn/81.1.330S>
- Li, S., Yao, Y., Chen, J., Hao, X., Ji, X., Zhu, Y., & Chen, X. (2024). A systematic review of black soybean (*Glycine max* ( L .) Merr .): Nutritional composition , bioactive compounds , health benefits , and processing to application. *Food Frontiers*, 1–24. <https://doi.org/10.1002/fft2.376>
- Liu, Q., & Xiang, M. (2023). Effect of methyl substitution on hydrogen bond structure of anthocyanin. *Research Square*, 1–14. <https://doi.org/https://doi.org/10.21203/rs.3.rs-2869883/v1>
- Mao, C., Wu, S., Zhang, L., & Zhuang, H. (2024). Effects of Fermentation Modification and Combined Modification with Heat-Moisture Treatment on the Multiscale Structure , Physical and Chemical Properties of Corn Flour and the Quality of Traditional Fermented Corn Noodles. *Foods Journal*, 13(4043), 1–23.
- Massironi, A., Toccaceli, M., Marinelli, A., Maggioni, D., Scapuzzi, C., & Emide, D. (2025). Journal of Drug Delivery Science and Technology Extraction and Encapsulation of Purple Corn Cob Anthocyanins Into Starch- and Zein-based Delivery Systems. *Journal of Drug Delivery Science and Technology*, 105, 106624. <https://doi.org/10.1016/j.jddst.2025.106624>
- Mustikarini, E. D., Prayoga, G. I., & Yufikar, Y. (2023). Karakter Morfologi dan

- Depresi Silang dalam Galur F4 Jagung Ungu Hasil Persilangan Bersari Bebas. *Agrotechnology Research Journal*, 7(1), 27–33. <https://doi.org/10.20961/agrotechresj.v7i1.71861>
- Naisali, H., & Wulan, S. N. (2020). Karakteristik Sensori Tempe Kacang Tunggak Hitam dan Tempe Kedelai. *Jurnal Pangan Dan Agroindustri*, 8(1), 29–35.
- Nurjannah, P., Yulia, R., & Nadia, S. (2026). Phytochemical Screening , GC-MS Analysis , and Antioxidant Activity ( DPPH Method ) of Ethanol Extract of Chinese Betel Leaf ( *Peperomia Pellucida* ( L .) Kunth ) Skrining Fitokimia, Analisis GC-MS, dan Aktivitas Antioksidan ( Metode DPPH ). *Journal of Pharmaceutical and Sciences*, 9(2), 1791–1801. <https://doi.org/DOI:https://doi.org/10.36490/journal-jps.com>
- Nurmilah, S., Frediansyah, A., Cahyana, Y., Balia, R. L., Bintang, B., & Lara, G. (2025). Food Chemistry : Molecular Sciences Exploring microbial dynamics and metabolomic profiling of isoflavone transformation in black and yellow soybean tempe for sustainable functional foods. *Food Chemistry: Molecular Sciences*, 11(100279). <https://doi.org/10.1016/j.fochms.2025.100279>
- Nurrahman. (2015). Evaluasi Komposisi Zat Gizi dan Senyawa Antioksidan Kedelai Hitam dan Kedelai Kuning. *Jurnal Aplikasi Teknologi Pangan*, 04(03), 89–93. <https://doi.org/10.17728/jatp.2015.17>
- Oladipo, T. G., & Abe, A. (2022). Genetic Control of Total Phenolic Content and some Kernel Compositional Traits in Purple Maize. *International Journal of Plant Breeding and Genetic*, 9(6), 1–11.
- Osakabe, N., Shimizu, T., Fujii, Y., Fushimi, T., & Calabrese, V. (2024). Sensory Nutrition and Bitterness and Astringency of Polyphenols. *Biomolecules*, 14(234), 1–22.
- Palupi, E., & Rahmatika, M. (2022). Peningkatan Nilai Gizi Pada Susu Tempe Kedelai Hitam (*Glycine soja sieb*). *Jurnal Gizi Dietetik*, 1(1), 42–49.
- Pantoa, T., Wadeesirisak, K., Saah, S., & Saithong, P. (2025). In vitro protein digestibility and bioactive activities of yogurt from black soybean ( *Glycine max L .*) milk. *Future Foods*, 11. <https://doi.org/10.1016/j.fufo.2025.100636>
- Qi, X., Yang, S., Zhao, D., Liu, J., Wu, Q., & Yang, Q. (2020). Changes in structural and physicochemical properties of corn flour after fermentation with *Lactobacillus plantarum* Y1. *Starch - Stärke*, 72(11). <https://doi.org/10.1002/star.201900285>.This
- Rahayu, W. M., Silvana, A., & Silviandari, P. M. (2021). Karakteristik Sari Tempe Kedelai Hitam (*Glycine max* var. Mallika) dengan Jahe Merah pada Variasi Persentase Kulit Biji dalam Fermentasi. *Jurnal Ilmiah Teknosains*, 7(2), 31–38.
- Rahmawan, A., Mumtaz, I. J., Haiefinah, R., Hasna, L. Z., Riyanto, E. M. P. R. A., & Pamela, V. Y. (2021). Karakteristik Organoleptik dari Tempe Modifikasi

- dengan Kacang Kedelai Hitam (Glycine Max (L) Merrit). *Jurnal Litbang Edusaintech*, 2(2), 135–140.
- Ramírez-esparza, U., Ordoñez-cano, A. J., López-martínez, L. X., Espinoza-hicks, J. C., Alvarado-gonzález, M., Ascacio-valdés, J. A., & Buenrostro-figueroa, J. J. (2025). Solid-State Fermentation with *Rhizopus oryzae*: Enhancing Antioxidant and Phenolic Content in Pigmented Corn. *Resources*, 14(158), 1–13. <https://doi.org/10.3390/resources14100158>
- Saikaew, K., Lertrat, K., Ketthaisong, D., Meenune, D., & Tangwongchai, R. (2018). Influence of variety and maturity on bioactive compounds and antioxidant activity of purple waxy corn ( *Zea mays* L . var . ceratina ). *International Food Research Journal*, 25(5), 1985–1995.
- Saktiono, S. S., Kusumaningruma, S. B. C., Susilaningruma, D. F., Widiyastutia, P. A., Lestaria, W., Arifaa, S. U., Oktaviana, D. A., Oktaviana, R. P. I. R., & A. (2023). Analisis vitamin c, sifat fisik, dan sifat organoleptik tempe berbahan dasar kedelai kuning (Glycine max), kedelai hijau (edamame), dan kedelai hitam (Glycine soja). *Jurnal Teknologi Pangan Dan Gizi*, 22(2), 113–121.
- Salazar-aranda, R., Perez-Lopez, L. A., Lopez-Arroyo, J., & Torres, N. W. de. (2011). Antimicrobial and Antioxidant Activities of Plants from Northeast of Mexico. *Evidence-Based Complementary and Alternative Medicine*, 41, 233–236. <https://doi.org/10.1093/ecam/nep127>
- Samtiya, M., Aluko, R. E., Puniya, A. K., & Dhewa, T. (2021). Enhancing Micronutrients Bioavailability through Fermentation of Plant-Based Foods : A Concise Review. *Fermentation*, 7(63), 1–13.
- Setyani, S., Nurdjanah, S., & Eliyana. (2017). Evaluasi Sifat Kimia dan Sensori Tempe Kedelai-Jagung dengan Berbagai Konsentrasi Ragi Raprma dan Berbagai Formulasi. *Jurnal Teknologi Industri & Hasil Pertanian*, 22(2), 85–98.
- Sinaga, S. E., & Tumewu, Z. (2023). Literature Study of Tempe Bioactive Compounds as Functional Foods in Indonesia. *Helium: Journal of Science and Applied Chemistry*, 03(02), 35–44.
- Soktavia, E., Nursanti, F. E., Septianasari, N., Olimfia, S., & Indahsari, S. N. (2026). Analisis Kinetika Dan Aktivitas Enzimatis Dalam Fermentasi Tempe Berbasis *Rhizopus Oligosporus*. *Indonesian Journal of Multidisciplinary on Social and Technology*, 4(2), 237–243.
- Sorenson, W. G., & Hesseltine, C. W. (1966). Carbon and Nitrogen Utilization by *Rhizopus oligosporus*. *Mycologia*, 58(5), 681–689. <https://doi.org/https://doi.org/10.1080/00275514.1966.12018361>
- Sun, T., Wang, Z., Dai, Y., Zhai, K., Fang, X., Chen, Y., & Zhao, B. (2025). Metabolomics study on fermented soybean meal by *Rhizopus oligosporus* RT-3 and its improvement on the growth status of malnourished mice. *Food*

- Production, Processing and Nutrition*, 7(32), 1–14.  
<https://doi.org/10.1186/s43014-024-00286-w>
- Surya, R., Amalia, N., Gunawan, W. Ben, Taslim, N. A., Ghafoor, M., Mayulu, N., Hardinsyah, H., Syahputra, R. A., Kartawidjajaputra, F., Rizzo, G., Tjandrawinata, R. R., Subali, D., Kurniawan, R., & Nurkolis, F. (2024). Tempe as Superior Functional Antioxidant Food: From Biomechanism to Future Development of Soybean-Based Functional Food. *Pharmacia*, 71, 1–7. <https://doi.org/10.3897/pharmacia.71.e116748>
- Syahidah, N., Asni, M., Surya, R., Mohmad, N., Joe, S., Ismail, N., Razid, S., & Kamal, N. (2024). Metabolomics insights of conventional and organic tempe during in vitro digestion and their antioxidant properties and cytotoxicity in HCT-116 cells. *Food Research International*, 195(114951). <https://doi.org/10.1016/j.foodres.2024.114951>
- Syukri, D., Silvy, D., & Ramadani, S. F. (2022). Effect of Various Cooking Methods on Quality and Sensory Characteristics of Tempeh Made from Soybeans and Corn. *Andalasian International Journal*, 3(2), 87–113.
- Tang, X., Luo, T., Li, X., Yang, H., Yang, Y., Li, J., Xu, B., & Huang, Z. (2018). Application and Analysis of *Rhizopus oryzae* Mycelia Extending Characteristic in Solid-state Fermentation for Producing Glucoamylase. *Microbiol Biotechnol*, 28(11), 1865–1875.
- Tian, X., Lu, Q., Zhao, S., Li, J., Luo, Q., Wang, X., Zhang, Y., & Zheng, N. (2021). Compound Profiles, and Related Gene Expression of Longissimus Thoracis et Lumborum Muscle in Goats. *Animals*, 11(2407). <https://doi.org/https://doi.org/10.3390/ani11082407>
- Trehan, S., Singh, N., & Kaur, A. (2018). Characteristics of white, yellow, purple corn accessions: phenolic profile, textural, rheological properties and muffin making potential. *Journal of Food Science and Technology*, 55(6), 2334–2343. <https://doi.org/10.1007/s13197-018-3171-5>
- Triyanto, B. P., Nugroho, T. W., Widyastuti, N., Masruroh, Z., & Anjani, G. (2023). Formulasi Biskuit Tepung Tempe Biji Kedawung (*Parkia roxburghii* G. Don) untuk Pasien Diabetes Melitus. *Jurnal Gizi Klinik Indonesia*, 20(1), 29. <https://doi.org/10.22146/ijcn.67253>
- Wang, W., Yang, L., & Noguchi, N. (2024). Development of a grape-harvesting robot using a multi-step detection method based on AI and a position-estimation algorithm. *Smart Agricultural Technology*, 9(August), 100574. <https://doi.org/10.1016/j.atech.2024.100574>
- Widoyo, S., & Handajani, S. (2015). Pengaruh Lama Fermentasi Terhadap Kadar Serat Kasar dan Aktivitas Antioksidan Tempe Beberapa Varietas Kedelai. *Biofarmasi*, 13(2), 59–65. <https://doi.org/10.13057/biofar/fl30203>
- Xu, B. J., & Chang, S. K. C. (2007). A Comparative Study on Phenolic Profiles and

- Antioxidant Activities of Legumes as Affected by Extraction Solvents. *Journal of Food Science*, 72(2), 159–165. <https://doi.org/10.1111/j.1750-3841.2006.00260.x>
- Xue, H., Zha, M., Tang, Y., Zhao, J., Du, X., & Wang, Y. (2024). Research Progress on the Extraction and Purification of Anthocyanins and Their Interactions with Proteins. *Molecules*, 29(2815), 1–31. <https://doi.org/https://doi.org/10.3390/molecules29122815>
- Yarlina, V. P., Tandra, J. L., Indiarto, R., Andoyo, R., Harlina, P. W., Ubaidillah, N. H. N., & Lan, M. N. (2026). Unraveling Tempeh through omics: a scoping review of fermentation pathways and functional health benefit. *Science of Food Published*, 10(122), 1–16. <https://doi.org/https://doi.org/10.1038/s41538-026-00754-2>
- Yesshinta, R. (2015). *Komposisi Proksimat Tempe yang Dibuat dari Kedelai Lokal dan Kedelai Impor*. 44, 4–13.
- Zhang, Y., Chen, S., Qi, B., Sui, X., & Jiang, L. (2018). Complexation of thermally-denatured soybean protein isolate with anthocyanins and its effect on the protein structure and in vitro digestibility. *Food Research International*, 106(February), 619–625. <https://doi.org/10.1016/j.foodres.2018.01.040>