

DAFTAR PUSTAKA

- Abu-Salem, F. M., Mohamed, R. K., Gibriel, A. Y., & Rasmy, N. M. (2014). Levels of some antinutritional factors in tempeh produced from some legumes and jojobas seeds. *International Journal of Biological, Agricultural, Biosystems, Life Science and Engineering*, 8(3), 280–285.
- Adebayo SF. (2014). *Effect of Soaking Time on the Proximate, Mineral Compositions and Anti-nutritional Factors of Lima Bean*. 27. www.iiste.org
- Adebo, J. A., Njobeh, P. B., Gbashi, S., Oyedele, A. B., Ogundele, O. M., Oyeyinka, S. A., & Adebo, O. A. (2022). Fermentation of Cereals and Legumes: Impact on Nutritional Constituents and Nutrient Bioavailability. *Fermentation*, 8(2), 1–57. <https://doi.org/10.3390/fermentation8020063>
- Adeyemo, *, & Onilude, S. M. (2013). Enzymatic Reduction of Anti-nutritional Factors in Fermenting Soybeans by *Lactobacillus plantarum* Isolates from Fermenting Cereals. In *Nigerian Food Journal Official Journal of Nigerian Institute of Food Science and Techonology* www.nifst.org NIFOJ (Vol. 31, Issue 2). www.nifst.org
- Adeyemo, S. M., & Onilude, A. A. (2013). Enzymatic Reduction of Anti-nutritional Factors in Fermenting Soybeans by *Lactobacillus plantarum* Isolates from Fermenting Cereals. *Nigerian Food Journal*, 31(2), 84–90. [https://doi.org/10.1016/s0189-7241\(15\)30080-1](https://doi.org/10.1016/s0189-7241(15)30080-1)
- Aguirre, M., & Collins, M. D. (1993). Lactic acid bacteria and human clinical infection. In *Journal of Applied Bacteriology* (Vol. 75, Issue 2, pp. 95–107). <https://doi.org/10.1111/j.1365-2672.1993.tb02753.x>
- Agume, A. S. N., Njintang, N. Y., & Mbofung, C. M. F. (2017). Effect of soaking and roasting on the physicochemical and pasting properties of soybean flour. *Foods*, 6(2), 1–10. <https://doi.org/10.3390/foods6020012>
- Aletor, V. A. (1999). Anti-Nutritional Factors As Nature's Paradox In Food And Nutrition Securities. *The Federal University of Technology, Akure*.
- Ali, W., Moiez Ahmad, M., Iftikhar, F., Qureshi, M., & Ceyhan, A. (2020). Nutritive potentials of Soybean and its significance for humans health and animal production: A Review. In *Eurasian Journal of Food Science and Technology* (Vol. 4, Issue 1).
- Anggriawan, R. (2015). Microbiological and Food Safety Aspects of Tempeh Production in Indonesia. *The Economist*, December. <https://core.ac.uk/download/pdf/154931778.pdf>

- Asian Productivity Organization. (2003). *Processing and Utilization of Legumes*. www.apo-tokyo.org
- Avilés-Gaxiola, S., Chuck-Hernández, C., & Serna Saldívar, S. O. (2018). Inactivation Methods of Trypsin Inhibitor in Legumes: A Review. *Journal of Food Science*, 83(1), 17–29. <https://doi.org/10.1111/1750-3841.13985>
- Ayed, L., & Hamdi, M. (2002). Culture conditions of tannase production by *Lactobacillus plantarum*. In *Biotechnology Letters* (Vol. 24).
- Bennetau-Pelissero, C. (2018). *Plant Proteins from Legumes* (pp. 1–43). https://doi.org/10.1007/978-3-319-54528-8_3-1
- Bohn, L., Meyer, A. S., & Rasmussen, S. K. (2008). Phytate: Impact on environment and human nutrition. A challenge for molecular breeding. *Journal of Zhejiang University: Science B*, 9(3), 165–191. <https://doi.org/10.1631/jzus.B0710640>
- Brouns, F. (2022). Phytic acid and whole grains for health controversy. *Nutrients*, 14(1). <https://doi.org/10.3390/nu14010025>
- BSN. (2012). *Tempe : Persembahan Indonesesia untuk Dunia*.
- Chauhan, D., Kumar, K., Ahmed, N., Thakur, P., Rizvi, Q. U. E. H., Jan, S., & Yadav, A. N. (2022). Impact of soaking, germination, fermentation, and roasting treatments on nutritional, anti-nutritional, and bioactive composition of black soybean (*Glycine max* L.). *Journal of Applied Biology and Biotechnology*, 10(5), 186–192. <https://doi.org/10.7324/JABB.2022.100523>
- Chinma, C. E., Azeez, S. O., Sulayman, H. T., Alhassan, K., Alozie, S. N., Gbadamosi, H. D., Danbaba, N., Oboh, H. A., Anuonye, J. C., & Adebo, O. A. (2020). Evaluation of fermented African yam bean flour composition and influence of substitution levels on properties of wheat bread. *Journal of Food Science*, 85(12), 4281–4289. <https://doi.org/10.1111/1750-3841.15527>
- Coulibaly, A., Kouakou, B., & Chen, J. (2011). Phytic Acid in Cereal Grains: Structure, Healthy, or Harmful Ways to Reduce Phytic Acid in Cereal Grains and Their Effects on Nutritional Quality. *American Journal of Plant Nutrition and Fertilization Technology*, 1(1), 1–22.
- Cui, L., Li, D. J., & Liu, C. Q. (2012). Effect of fermentation on the nutritive value of maize. *International Journal of Food Science and Technology*, 47(4), 755–760. <https://doi.org/10.1111/j.1365-2621.2011.02904.x>
- Davies, N.T. Reid, H. (1979). *An evaluation of the phytate, zinc, copper, iron and manganese contents of and zn availability from soya based textured vegetable protein meat substitutes or meat extenders* (p. 579).

- Deshpande, S. S., Sathe, S. K., Salunkhe, D. K., & Cornforth, D. P. (1982). *Effects of Dehulling on Phytic Acid, Polyphenols, and Enzyme Inhibitors of Dry Beans (Phaseolus vulgaris L.)*.
- Efriwati, Suwanto, A., Rahayu, G., & Nuraida, L. (2013). Population Dynamics of Yeasts and Lactic Acid Bacteria (LAB) During Tempeh Production. *Hayati Journal of Biosciences*, 20(2), 57–64. <https://doi.org/10.4308/hjb.20.2.57>
- Egounlety, M., & Aworh, O. (2003a). Effect of soaking, dehulling, cooking and fermentation with *Rhizopus oligosporus* on the oligosaccharides, trypsin inhibitor, phytic acid and tannins of soybean (*Glycine max* Merr.), cowpea (*Vigna unguiculata* L. Walp) and groundbean (*Macrotyloma geocarpa* Ha. *Journal of Food Engineering*, 56, 249–254.
- Egounlety, M., & Aworh, O. C. (2003b). Effect of soaking, dehulling, cooking and fermentation with *Rhizopus oligosporus* on the oligosaccharides, trypsin inhibitor, phytic acid and tannins of soybean (*Glycine max* Merr.), cowpea (*Vigna unguiculata* L. Walp) and groundbean (*Macrotyloma geocarpa* Harms). *Journal of Food Engineering*, 249–254.
- El-Adawy, T. A., Rahma, E. H., El-Bedawy, A. A., & Sobihah, T. Y. (2000). *Nutritional quality and protein solubility of legume seeds Effect of soaking process on nutritional quality and protein solubility of some legume seeds*.
- Embaby, H. E. S. (2010). Effect of soaking, dehulling, and cooking methods on certain antinutrients and in vitro protein digestibility of bitter and sweet lupin seeds. *Food Science and Biotechnology*, 19(4), 1055–1062. <https://doi.org/10.1007/s10068-010-0148-1>
- Fekadu Gemedu, Habtamu. R. (2014). Antinutritional Factors in Plant Foods: Potential Health Benefits and Adverse Effects. *International Journal of Nutrition and Food Sciences*, 3(4), 284. <https://doi.org/10.11648/j.ijnfs.20140304.18>
- Gao, Y. L., Wang, C. S., Zhu, Q. H., & Qian, G. Y. (2013). Optimization of solid-state fermentation with *Lactobacillus brevis* and *Aspergillus oryzae* for trypsin inhibitor degradation in soybean meal. *Journal of Integrative Agriculture*, 12(5), 869–876. [https://doi.org/10.1016/S2095-3119\(13\)60305-6](https://doi.org/10.1016/S2095-3119(13)60305-6)
- Gen Lei, X., & Porres, J. M. (2011). *Phytase: An Enzyme to Improve Soybean Nutrition*. www.intechopen.com
- Greiner, R., & Konietzny, U. (2006). Phytase for food application. *Food Technology and Biotechnology*, 44(2), 125–140.

- Hasbullah, & Silvy, D. (2020). Study of Tempe Production from Dried Peeled Soybeans. *IOP Conference Series: Earth and Environmental Science*, 515(1). <https://doi.org/10.1088/1755-1315/515/1/012059>
- Hendek Ertop, M., & Bektaş, M. (2018). Enhancement Of Bioavailable Micronutrients And Reduction Of Antinutrients In Foods With Some Processes. *Food and Health*, 159–165. <https://doi.org/10.3153/fh18016>
- Hutkins, R. W. (2006). *Microbiology and Technology of Fermented Foods*.
- Ismarani. (2012). Potensi Senyawa Tannin Dalam Menunjang Produksi Ramah Lingkungan. *Jurnal Agribisnis Dan Pengembangan Wilayah*, 3(2), 46–55.
- Jayanegara, A., Makkar, H. P. S., & Becker, K. (2009). Emisi Metana dan Fermentasi Rumen in Vitro Ransum Hay yang Mengandung Tanin Murni pada Konsentrasi Rendah In Vitro Methane Emission and Rumen Fermentation of Hay Diet Contained Purified Tannins at Low Concentration. 32(3), 185–195.
- Kakade, M L. Rackis, J J, Meghee J E. Puski, G. (1974). Determination of Trypsin Inhibitor Activity of Soy Products: A Collaborative Analysis of an Improved Procedure. *Association of Cereal Chemistry*, 51(3), 376–382.
- Khattab, R. Y., & Arntfield, S. D. (2009). Nutritional quality of legume seeds as affected by some physical treatments 2. Antinutritional factors. *LWT - Food Science and Technology*, 42(6), 1113–1118. <https://doi.org/10.1016/j.lwt.2009.02.004>
- Kohli, V., & Singha, S. (2024). Protein digestibility of soybean: how processing affects seed structure, protein and non-protein components. In *Discover Food* (Vol. 4, Issue 1). Springer Nature. <https://doi.org/10.1007/s44187-024-00076-w>
- Krisdiana, R. (2014). Penyebaran Varietas Unggul Kedelai dan Dampaknya terhadap Ekonomi Perdesaan. *Jurnal Penelitian Pertanian Tanaman Pangan*, 33(1), 61. <https://doi.org/10.21082/jpntp.v33n1.2014.p61-69>
- Kumar, V., Sinha, A. K., Makkar, H. P. S., & Becker, K. (2010). Dietary roles of phytate and phytase in human nutrition: A review. *Food Chemistry*, 120(4), 945–959. <https://doi.org/10.1016/j.foodchem.2009.11.052>
- Kumar, V., Sinha, A. K., Makkar, H. P. S., De Boeck, G., & Becker, K. (2012). Phytate and phytase in fish nutrition. *Journal of Animal Physiology and Animal Nutrition*, 96(3), 335–364. <https://doi.org/10.1111/j.1439-0396.2011.01169.x>

- Lestienne, I., Icard-Vernière, C., Mouquet, C., Picq, C., & Trèche, S. (2005). Effects of soaking whole cereal and legume seeds on iron, zinc and phytate contents. *Food Chemistry*, 89(3), 421–425. <https://doi.org/10.1016/j.foodchem.2004.03.040>
- Maskar, D. H., Anwar, K., Prasetyo, I. N., Kusumawati, I., & Ridha, M. (2022). Studi Kasus: Perspektif Generasi Muda Terhadap Tempe Melalui Sosial Media. *Binawan Student Journal*, 4(3), 57–63.
- Mehanni, A. E., Sorour, M. A., Abd El-Galel, H., & Ahmed, W. K. (2021). Impact of soaking and germination procedures on polyphenols, tannins, and phytate contents in some Egyptian pulses. *SVU-International Journal of Agricultural Sciences*, 3(4), 63–72. <https://doi.org/10.21608/svuijas.2021.89539.1135>
- Melia, S., Juliyarsi, I., Kurnia, Y. F., Pratama, Y. E., & Azahra, H. (2021). Examination of Titratable Acidity, pH, Total Lactic Acid Bacteria and Sensory Properties in Whey Fermented with Probiotic *Pediococcus acidilactici* BK01. *Advances in Animal and Veterinary Sciences*, 10(1), 114–119. <https://doi.org/10.17582/journal.aavs/2022/10.1.114.119>
- Moreno, M. R. F., Leisner, J. J., Tee, L. K., Ley, C., Radu, S., Rusul, G., Vancanneyt, M., & De Vuyst, L. (2002). *Microbial analysis of Malaysian tempeh, and characterization of two bacteriocins produced by isolates of Enterococcus faecium*.
- Mulyowidarso, R. K. (1988). *The microbiology and biochemistry of soybean soaking for tempe fermentation*. <https://doi.org/10.26190/unsworks/5821>
- Mulyowidarso, R. K., Fleet, G. H., & Buckle, K. A. (1989). The microbial ecology of soybean soaking for tempe production. *International Journal of Food Microbiology*, 8(1), 35–46. [https://doi.org/10.1016/0168-1605\(89\)90078-0](https://doi.org/10.1016/0168-1605(89)90078-0)
- Mulyowidarso, R. K., Fleet, G. H., & Buckle, K. A. (1991). Changes in the concentration of organic acids during the soaking of soybeans for tempe production. *International Journal of Food Science & Technology*, 26(6), 595–606. <https://doi.org/10.1111/j.1365-2621.1991.tb02005.x>
- Nasional, B. S. (2012). *Tempe : Persembahan Indonsesia untuk Dunia*.
- Nissar, J., Ahad, T., Naik, H. R., & Hussain, S. Z. (2017). A review phytic acid: As antinutrient or nutraceutical. *Journal of Pharmacognosy and Phytochemistry*, 6(6), 1554–1560.
- Nout, M. J. R., & Kiers, J. L. (2005a). Tempe fermentation, innovation and functionality: Update into the third millenium. *Journal of Applied Microbiology*, 98(4), 789–805. <https://doi.org/10.1111/j.1365-2672.2004.02471.x>

- Nout, M. J. R., & Kiers, J. L. (2005b). Tempe fermentation, innovation and functionality: Update into the third millenium. *Journal of Applied Microbiology*, 98(4), 789–805. <https://doi.org/10.1111/j.1365-2672.2004.02471.x>
- Obadina, A. O., Akinola, O. J., Shittu, T. A., & Bakare, H. A. (2013). Effect of Natural Fermentation on the Chemical and Nutritional Composition of Fermented Soymilk Nono. *Nigerian Food Journal*, 31(2), 91–97. [https://doi.org/10.1016/s0189-7241\(15\)30081-3](https://doi.org/10.1016/s0189-7241(15)30081-3)
- Omodara, T. R., & Aderibigbe, E. Y. (2019). Comparative Studies on the Effect of Fermentation on the Nutritional Compositions and Anti-nutritional Levels of Glycine max Fermented Products: Tempeh and Soy-Iru. *Annual Research & Review in Biology*, 1–9. <https://doi.org/10.9734/arrb/2019/v32i430094>
- Onwurafor, E. U., J.C, O., & A.M Ezeoke. (2014). Effect of Fermentation Methods on Chemical and Microbial Properties of Mung Bean (*Vigna radiata*) Flour. In *Nigerian Food Journal Official Journal of Nigerian Institute of Food Science and Technology www.nifst.org NIFOJ* (Vol. 32, Issue 1). www.nifst.org
- Osman, M. A. (2007). Effect of Different Processing Methods, on Nutrient Composition, Antinutritional Factors. In *Pakistan Journal of Nutrition* (Vol. 6, Issue 4, pp. 299–303).
- Patra, A. K., & Saxena, J. (2010). A new perspective on the use of plant secondary metabolites to inhibit methanogenesis in the rumen. *Phytochemistry*, 71(11–12), 1198–1222. <https://doi.org/10.1016/j.phytochem.2010.05.010>
- Perdani, A. W., & Utama, Z. (2020a). Korelasi Kadar Asam Fitat Dan Protein Terlarut Tepung Tempe Kedelai Lokal Kuning (*Glycine max*) Dan Hitam (*Glycine soja*) Selama Fermentasi. *Jurnal Teknologi Pangan*, 15(1), 1–11.
- Perdani, A. W., & Utama, Z. (2020b). Korelasi Kadar Asam Fitat Dan Protein Terlarut Tepung Tempe Kedelai Lokal Kuning (*Glycine max*) Dan Hitam (*Glycine soja*) Selama Fermentasi. *Jurnal Teknologi Pangan*, 15(1), 1–11.
- Petroski, W., & Minich, D. M. (2020). Is There Such a Thing as Anti-Nutritents? A Narrative Review of Perceived Problematic Plant Compounds. *Nutrients*, 12(10), 2929.
- Prachansuwan, A., Kriengsinyos, W., Judprasong, K., Kovitvadhi, A., & Chundang, P. (2019). Effect of different pre-boiling treatment on in vitro protein and amino acid digestibility of mung beans [*Vigna radiata* (L.) Wilczek]. *Malaysian Journal of Nutrition*, 25(3), 361–375. <https://doi.org/10.31246/mjn-2019-0046>

- Pranoto, Y., Anggrahini, S., & Efendi, Z. (2013). Effect of natural and *Lactobacillus plantarum* fermentation on in-vitro protein and starch digestibilities of sorghum flour. *Food Bioscience*, 2, 46–52. <https://doi.org/10.1016/j.fbio.2013.04.001>
- Pratap, A., Solanki, R., & Kumar, J. (2012). Soybean. In *Technological Innovations in Major World Oil Crops, Volume 1: Breeding*. <https://doi.org/10.1007/978-1-4614-0356-2>
- Prativi, M. B. N., Astuti, D. I., Putri, S. P., Laviña, W. A., Fukusaki, E., & Aditiawati, P. (2023). Metabolite Changes in Indonesian Tempe Production from Raw Soybeans to Over-Fermented Tempe. *Metabolites*, 13(2). <https://doi.org/10.3390/metabo13020300>
- Radita, R., Suwanto, A., Kurosawa, N., Wahyudi, A. T., & Rusmana, I. (2017). Metagenome Analysis of Tempeh Production: Where did the Bacterial Community in Tempeh Come from? *Malaysian Journal of Microbiology*, 13(4), 280–288.
- Radita, R., Suwanto, A., Kurosawa, N., Wahyudi, A. T., & Rusmana, I. (2021). Dynamics Of Microbial Community During Tempeh Fermentation. *Biotropia*, 28(1), 11–20. <https://doi.org/10.11598/btb.2021.28.1.820>
- Reale, A., Konietzny, U., Coppola, R., Sorrentino, E., & Greiner, R. (2007). The importance of lactic acid bacteria for phytate degradation during cereal dough fermentation. *Journal of Agricultural and Food Chemistry*, 55(8), 2993–2997. <https://doi.org/10.1021/jf063507n>
- Romulo, A., & Surya, R. (2021). Tempe: A traditional fermented food of Indonesia and its health benefits. *International Journal of Gastronomy and Food Science*, 26(August), 100413. <https://doi.org/10.1016/j.ijgfs.2021.100413>
- Rui, X., Wang, M., Zhang, Y., Chen, X., Li, L., Liu, Y., & Dong, M. (2017). Optimization of soy solid-state fermentation with selected lactic acid bacteria and the effect on the anti-nutritional components. *Journal of Food Processing and Preservation*, 41(6). <https://doi.org/10.1111/jfpp.13290>
- Savage, & Morrison. (2003). Trypsin Inhibitors. *Lincoln University, Canterbury, New Zealand*, 5878–5884. [https://doi.org/10.1016/S0140-6736\(70\)91636-3](https://doi.org/10.1016/S0140-6736(70)91636-3)
- Setyono, A., Zuheid, N., Sudarmadji, S., & Adnan, M. (1990). Pengurangan asam fitat kedelai dengan cara pengupasan. *Agritech*, 10.
- Sharma, A., & Sehgal, S. (1992). Effect of processing and cooking on the antinutritional factors of faba bean (*Viola faba*). In *Food Chemistry* (Vol. 43).

- Sharma, D., Gupta, R., & Joshi, I. (2015). Nutrient analysis of raw and processed soybean and development of value added soybean noodle . *Invent J*, 1(November 2013), 1–5.
- Sharma, K., Kumar, V., Kaur, J., Tanwar, B., Goyal, A., Sharma, R., Gat, Y., & Kumar, A. (2021). Health effects, sources, utilization and safety of tannins: a critical review. In *Toxin Reviews* (Vol. 40, Issue 4, pp. 432–444). Taylor and Francis Ltd. <https://doi.org/10.1080/15569543.2019.1662813>
- Shi, L., Mu, K., Arntfield, S. D., & Nickerson, M. T. (2017). Changes in levels of enzyme inhibitors during soaking and cooking for pulses available in Canada. *Journal of Food Science and Technology*, 54(4), 1014–1022. <https://doi.org/10.1007/s13197-017-2519-6>
- Sivamma, Mounika, Sairam, H. N., & Rao, J. (2021). *Applications of vacuum technology in food processing*. 10(5), 914–918. www.ift.org
- Soetan, K. O., & Oyewole, O. E. (2009). *The need for adequate processing to reduce the anti- nutritional factors in plants used as human foods and animal feeds : A review*. 3(9), 223–232.
- Sutardi, & K.A. Buckle. (2004). Characteristics of Phytases From Soybeans and Microorganisms Involved In The Tempe Production. *Jurnal. Teknol. Dan Industri Pangan*, XV(3), 232–238.
- Taveira, I. C., Maria, K., Nogueira, V., Lemos, D., De Oliveira, G., Do, R., & Silva, N. (2021). *EARTH AND ITS RESOURCES FERMENTATION: HUMANITY'S OLDEST BIOTECHNOLOGICAL TOOL*.
- Tranggono, Sutardi, & Kuswijayanto, B. (1992). Aktivitas Tripsin Inhibitor selama pembuatan tempe kara benguk, kacang koro, dan gude. *Agritech*, 12.
- Wang, H. L., Swain, E. W., & Heath, H. D. (1979). Hydration of Whole Soybeans Affects Solids Losses And Cooking Quality. *Journal of Food Science*, 44, 4–7.
- Wang, N., Hatcher, D. W., Toews, R., & Gawalko, E. J. (2009). Influence of cooking and dehulling on nutritional composition of several varieties of lentils (*Lens culinaris*). *LWT - Food Science and Technology*, 42(4), 842–848. <https://doi.org/10.1016/j.lwt.2008.10.007>
- Worku, A., & Sahu, O. (2017). Significance of fermentation process on biochemical properties of *Phaseolus vulgaris* (red beans). *Biotechnology Reports*, 16, 5–11. <https://doi.org/10.1016/j.btre.2017.09.001>

- Yalcin, S., & Basman, A. (2015a). Effects of infrared treatment on urease, trypsin inhibitor and lipoxygenase activities of soybean samples. *Food Chemistry*, 169, 203–210. <https://doi.org/10.1016/j.foodchem.2014.07.114>
- Yalcin, S., & Basman, A. (2015b). Effects of infrared treatment on urease, trypsin inhibitor and lipoxygenase activities of soybean samples. *Food Chemistry*, 169, 203–210. <https://doi.org/10.1016/j.foodchem.2014.07.114>
- Yang, H. W., Hsu, C. K., & Yang, Y. F. (2014). Effect of thermal treatments on anti-nutritional factors and antioxidant capabilities in yellow soybeans and green-cotyledon small black soybeans. *Journal of the Science of Food and Agriculture*, 94(9), 1794–1801. <https://doi.org/10.1002/jsfa.6494>
- Yarlina, V. P., Djali, M., Andoyo, R., Lani, M. N., & Rifqi, M. (2023). Effect of Soaking and Proteolytic Microorganisms Growth on the Protein and Amino Acid Content of Jack Bean Tempeh (*Canavalia ensiformis*). *Processes*, 11(4). <https://doi.org/10.3390/pr11041161>
- Yudianti, N. F., Yanti, R., Cahyanto, M. N., Rahayu, E. S., & Utami, T. (2020). Isolation and Characterization of Lactic Acid Bacteria from Legume Soaking Water of Tempeh Productions. *Digital Press Life Sciences*, 2, 00003. <https://doi.org/10.29037/digitalpress.22328>