

DAFTAR PUSTAKA

- Abbas, S. H., Ismail, I. M., Mostafa, T. M., & Sulaymon, A. H. (2014). Biosorption of Heavy Metals: A Review. *Journal of Chemical Science and Technology*, 3(4), 74–102.
- Abbaspour, N., Hurrell, R., & Kelishadi, R. (2014). Review on Iron and Its Importance for Human Health. *Journal of Research in Medical Sciences*, 19, 164–174.
- AIN (American Institute of Nutrition). (1977). Report of the American Institute of Nutrition Ad Hoc Committee on Standards for Nutritional Studies. *Journal of Nutrition*, 107(7), 1340–1348. <https://doi.org/10.1093/jn/107.7.1340>
- Akpomie, K. G., Dawodu, F. A., & Adebowale, K. O. (2015). Mechanism on The Sorption of Heavy Metals from Binary-Solution by a Low Cost Montmorillonite and its Desorption Potential. *Alexandria Engineering Journal*, 54(3), 757–767. <https://doi.org/10.1016/j.aej.2015.03.025>
- Aksu, T., Özsoy, B., Aksu, D. S., Yörük, M. A., & Gül, M. (2011). The Effects of Lower Levels of Organically Complexed Zinc, Copper and Manganese in Broiler Diets on Performance, Mineral Concentration of Tibia and Mineral Excretion. *Kafkas Universitesi Veteriner Fakültesi Dergisi*, 17(1), 141–146. <https://doi.org/10.9775/kvfd.2010.2735>
- Ali, S. S., Alsharbaty, M. H. M., Al-tohamy, R., Naji, G. A., Elsamahy, T., Mahmoud, Y. A., Kornaros, M., & Sun, J. (2024). A Review of the Fungal Polysaccharides as Natural Biopolymers: Current Applications and Future Perspective. *International Journal of Biological Macromolecules*, 273, 1–22. <https://doi.org/10.1016/j.ijbiomac.2024.132986>
- Anderson, G. J., & Frazer, D. M. (2017). Current Understanding of Iron Homeostasis. *The American Journal of Clinical Nutrition*, 106(6), 1559–1566. <https://doi.org/10.3945/ajcn.117.155804>
- Anghileri, L. J., & Thouvenot, P. (1998). ATP in Iron Overload-Induced Intracellular Calcium Changes. *International Journal of Molecular Medicine*, 1(5), 869–942. <https://doi.org/10.3892/ijmm.1.5.869>
- AOAC (Association of Official Analytical Chemist). (1995). *Official Method of Analysis of The Association of Official Analytical of Chemist*. Association of Official Analytical Chemist.
- AOAC (Association of Official Analytical Chemist). (2005). *Official Method of Analysis* (18th ed.). Association of Official Analytical Chemists.
- Aritonang, E., & Siagian, A. (2017). Research Article Relation Between Food Consumption and Anemia in Children in Primary School in a Final Disposal Waste Area Evawany Aritonang and Albiner Siagian. *Pakistan Journal of Nutrition*, 16(4), 242–248. <https://doi.org/10.3923/pjn.2017.242.248>

- Arosio, P., Ingrassia, R., & Cavadini, P. (2009). Ferritins: A Family of Molecules for Iron Storage, Antioxidation and More. *Biochimica et Biophysica Acta (BBA) - General Subjects*, 1790(7), 589–599. <https://doi.org/10.1016/j.bbagen.2008.09.004>
- Asobayire, F. S., Adou, P., Davidsson, L., Cook, J. D., & Hurrell, R. F. (2001). Prevalence of Iron Deficiency with and without Concurrent Anemia in Population Groups with High Prevalences of Malaria and other Infections: A Study in Côte d'Ivoire. *The American Journal of Clinical Nutrition*, 74(6), 776–782. <https://doi.org/10.1093/ajcn/74.6.776>
- Auerbach, M., & Adamson, J. W. (2016). How We Diagnose and Treat Iron Deficiency Anemia. *American Journal of Hematology*, 9(1), 31–38. <https://doi.org/10.1002/ajh.24201>
- Ayangbenro, A. S., & Babalola, O. O. (2017). A New Strategy for Heavy Metal Polluted Environments: A Review of Microbial Biosorbents. *International Journal of Environmental Research and Public Health*, 14(1), 1–16. <https://doi.org/10.3390/ijerph14010094>
- Balla, G., Jacob, H. S., Balla, J., Rosenberg, M., Nath, K., Eaton, J. W., & Vercellottig, M. (1992). Ferritin: A Cytoprotective Antioxidant Strategem of Endothelium. *Journal of Biological Chemistry*, 267(25), 18148–18153. [https://doi.org/10.1016/S0021-9258\(19\)37165-0](https://doi.org/10.1016/S0021-9258(19)37165-0)
- Beal, T., Massiot, E., Arsenault, J. E., & Smith, M. R. (2017). Global Trends in Dietary Micronutrient Supplies and Estimated Prevalence of Inadequate Intakes. *PloS One*, 12(4), 1–20. <https://doi.org/10.1371/journal.pone.0175554>
- Beard, J. L., Brigham, D. E., Kelley, S. K., & Green, M. H. (1998). Plasma Thyroid Hormone Kinetics are Altered in Iron-Deficient Rats 1. *Nutrient Requirements and Interactions*, 128(8), 1401–1408. <https://doi.org/10.1093/jn/128.8.1401>
- Borelli, P., Blatt, S., Pereira, J., Maurino, B. B. De, Tsujita, M., Xavier, G., Ambro, R., & Souza, A. C. De. (2007). Reduction of Erythroid Progenitors in Protein–Energy Malnutrition. *British Journal of Nutrition*, 97(2), 307–314. <https://doi.org/10.1017/S0007114507172731>
- Byrne, L., Hynes, M. J., Connolly, C. D., & Murphy, R. A. (2021). Influence of the Chelation Process on the Stability of Organic Trace Mineral Supplements Used in Animal Nutrition. *Animals*, 11(6), 1–13. <https://doi.org/10.3390/ani11061730>
- Byrne, L., & Murphy, R. A. (2022). Relative Bioavailability of Trace Minerals in Production Animal Nutrition: A Review. *Animals*, 12(15), 1–46. <https://doi.org/10.3390/ani12151981>
- Cable, R. G., Brambilla, D., Glynn, S. A., Kleinman, S., Mast, A. E., Spencer, B. R., Stone, M., & Kiss, J. E. (2016). Effect of Iron Supplementation on Iron Stores and Total Body Iron after Whole Blood Donation. *TRANSFUSION*, 00,

1–8. <https://doi.org/10.1111/trf.13659>

Camaschella, C, Pagani, A., Nai, A., & Silvestri, L. (2016). The Mutual Control of Iron and Erythropoiesis. *International Journal of Laboratory Hematology*, 38(Supply. 1), 20–26. <https://doi.org/10.1111/ijlh.12505>

Camaschella, Clara. (2017). New Insights into Iron Deficiency and Iron Deficiency Anemia. *Blood Reviews*, 31(4), 225–233. <https://doi.org/10.1016/j.blre.2017.02.004>

Camaschella, Clara, Nai, A., & Silvestri, L. (2020). Iron Metabolism and Iron Disorders Revisited in the Hepcidin Era. *Haematologica*, 105(2), 260–272. <https://doi.org/10.3324/haematol.2019.232124>

Canessa, P., & Larrondo, L. F. (2013). Environmental Responses and the Control of Iron Homeostasis in Fungal Dystems. *Applied Microbiology and Biotechnology*, 97(3), 939–955. <https://doi.org/10.1007/s00253-012-4615-x>

Chaparro, C. M., & Suchdev, P. S. (2019). Anemia Epidemiology, Pathophysiology, and Etiology in Low- and Middle-Income Countries. *Annals of the New York Academy of Sciences*, 1450(1), 15–31. <https://doi.org/10.1111/nyas.14092>

Chen, Y., Wan, J., Xia, H., Li, Y., Xu, Y., Lin, H., & Iftikhar, H. (2020). Total Iron Binding Capacity (TIBC) is a Potential Biomarker of Left Ventricular Remodelling for Patients with Iron Deficiency Anaemia. *BMC Cardiovascular Disorders*, 20(4), 1–9. <https://doi.org/10.1186/s12872-019-01320-3>

Cho, C., Ahn, S., Lim, T., Hong, H., Rhee, Y. K., Yang, D., & Jang, M. (2017). *Cynanchum wilfordii* Polysaccharides Suppress Dextran Sulfate Sodium-Induced Acute Colitis in Mice and the Production of Inflammatory Mediators from Macrophages. *Mediators of Inflammation*, 2017, 1–14. <https://doi.org/10.1155/2017/3859856>

Chung, J., Bauer, D. E., Ghamari, A., Nizzi, C. P., Deck, K. M., Kingsley, P. D., Yien, Y. Y., Huston, N. C., Chen, C., Schultz, I. J., Dalton, A. J., Wittig, J. G., Palis, J., Orkin, S. H., Lodish, H. F., Eisenstein, R. S., Cantor, A. B., & Paw, B. H. (2015). The mTORC1/4E-BP Pathway Coordinates Hemoglobin Production with L-Leucine Availability. *Science Signaling*, 8(372), 1–17. <https://doi.org/10.1126/scisignal.aaa5903>

Clareiy, E. (2025). Diseases Role of Haemoglobin in Human Biology and Clinical Practice. *Journal of Hematology & Thromboembolic Diseases*, 13(2), 1. <https://doi.org/10.35248/2329-8790.25.13.654>

Collins, J. F., Wessling-resnick, M., & Knutson, M. D. (2008). Hepcidin Regulation of Iron Transport. *Journal of Nutrition*, 138(11), 2284–2288. <https://doi.org/10.3945/jn.108.096347>

Dale, J. C., Burritt, M. F., & Zinsmeister, A. R. (2002). Diurnal Variation of Serum

- Iron, Iron-Binding Capacity, Transferrin Saturation, and Ferritin Levels. *American Journal of Clinical Pathology*, 117(5), 802–808. <https://doi.org/10.1309/2YT4-CMP3-KYW7-9RK1>
- Davis, M. R., Hester, K. K., Shawron, K. M., Lucas, E. A., Smith, B. J., & Clarke, S. L. (2012). Comparisons of the Iron Deficient Metabolic Response in Rats Fed either an AIN-76 or AIN-93 Based Diet. *Nutrition & Metabolism*, 9(95), 1–10. <https://doi.org/10.1186/1743-7075-9-95>
- Derbyshire, E., & Ayoob, K. T. (2019). Mycoprotein: Nutritional and Health Properties. *Nutrition Today*, 54(1), 7–15. <https://doi.org/10.1097/NT.0000000000000316>
- Deschemin, J., & Vaulont, S. (2013). Role of Hepcidin in the Setting of Hypoferremia during Acute Inflammation. *PloS One*, 8(4), 1–7. <https://doi.org/10.1371/journal.pone.0061050>
- Dhankhar, R., & Hooda, A. (2011). Fungal Biosorption-an Alternative to Meet the Challenges of Heavy Metal Pollution in Aqueous Solutions. *Environmental Technology*, 32(5), 467–491. <https://doi.org/10.1080/09593330.2011.572922>
- Dhondge, R. H., Agrawal, S., Kumar, S., Acharya, S., & Karwa, V. (2024). A Comprehensive Review on Serum Ferritin as a Prognostic Marker in Intensive Care Units: Insights Into Ischemic Heart Disease. *Cureus*, 16(3), 1–9. <https://doi.org/10.7759/cureus.57365>
- Díaz-Gómez, J., Twyman, R. M., Zhu, C., Farré, G., Serrano, J. C., Portero-Otin, M., Muñoz, P., Sandmann, G., Capell, T., & Christou, P. (2017). Biofortification of Crops with Nutrients: Factors Affecting Utilization and Storage. *Current Opinion in Biotechnology*, 44, 115–123. <https://doi.org/10.1016/j.copbio.2016.12.002>
- Dinakarkumar, Y., Ramakrishnan, G., & Reddy, K. (2024). Environmental Chemistry and Ecotoxicology Fungal Bioremediation: An Overview of the Mechanisms, Applications and Future Perspectives. *Environmental Chemistry and Ecotoxicology*, 6, 293–302. <https://doi.org/10.1016/j.enceco.2024.07.002>
- Ding, N., Ma, Y. H., Guo, P., Wang, T. K., Liu, L., Wang, J. B., & Jin, P. P. (2024). Reticulocyte Hemoglobin Content Associated with the Risk of Iron Deficiency Anemia. *Heliyon*, 10(3), 1–6. <https://doi.org/10.1016/j.heliyon.2024.e25409>
- Dix, D., Bridgham, J., Broderius, M., & Eide, D. (1997). Characterization of the FET4 Protein of Yeast. *Journal of Biological Chemistry*, 272(18), 11770–11777. <https://doi.org/10.1074/jbc.272.18.11770>
- Elba, F., Daryanti, E., Gumilang, L., & Nurjannah, T. A. (2021). Correlation Between Consumption of Protein and Vitamin C Among Children Aged 12–24 Months with Anemia in the South Sumedang District. *KnE Life Sciences*, 220–227. <https://doi.org/10.18502/cls.v6i1.8606>
- Ems, T., Lucia, K. S., & Huecker, M. R. (2023). *Biochemistry, Iron Absorption*.

StatPearls Publishing.

- Farcich, E. A., & Morgan, E. H. (2019). Diminished Iron Acquisition by Cells and Tissues of Belgrade Laboratory Rats. *American Journal of Physiology-Regulatory, Integrative and Comparative Physiology*, 262(2), 220–224. <https://doi.org/10.1152/ajpregu.1992.262.2.R220>
- Federer, W. T. (1991). *Statistics and Society: Data Collection and Interpretation* (2nd ed.). Marcel Dekker Inc.
- Filippi, V., Chou, D., Ronsmans, C., Graham, W., & Say, L. (2016). Levels and Causes of Maternal Mortality and Morbidity. In R. E. Black, R. Laxminarayan, M. Temmerman, & N. Walker (Eds.), *Reproductive, Maternal, Newborn, and Child Health* (2nd ed.). The International Bank for Reconstruction and Development / The World Bank.
- Finkelstein, J. L., Fothergill, A., Hackl, L. S., & Haas, J. D. (2019). Iron Biofortification Interventions to Improve Iron Status and Functional Outcomes. *Proceedings of the Nutrition Society*, 2, 197–207. <https://doi.org/10.1017/S0029665118002847>
- Finnigan, T. (2011). *Mycoprotein: Origins, Production and Properties*. Woodhead Publishing Limited.
- Finnigan, T. J. A., Wall, B. T., Wilde, P. J., Stephens, F. B., Taylor, S. L., & Freedman, M. R. (2019). Mycoprotein : The Future of Nutritious Nonmeat Protein, A Symposium Review. *Current Developments in Nutrition*, 3(6), 1–5. <https://doi.org/10.1093/cdn/nzz021>
- Fleming, M. D., Romano, M. A., Su, M. A., Garrick, L. M., Garrick, M. D., & Andrews, N. C. (1998). Nramp2 is Mutated in the Anemic Belgrade (b) Rat: Evidence of a Role for Nramp2 in Endosomal Iron Transport. *Proceedings of the National Academy of Sciences*, 95(3), 1148–1153. <https://doi.org/10.1073/pnas.95.3.1148>
- Fleming, M. D., Trenor, C. C., Su, M. A., Foerzler, D., Beier, D. R., Dietrich, W. F., & Andrews, N. C. (1997). Microcytic Anaemia Mice Have a Mutation in Nramp2, a Candidate Iron Transporter Gene. *Nature Genetics*, 16(4), 383–386. <https://doi.org/10.1038/ng0897-383>
- Fonseca, Ó., Ramos, A. S., Gomes, L. T. S., Salom, M., & Moreira, A. C. (2023). New Perspectives on Circulating Ferritin: Its Role in Health and Disease. *Molecules*, 28(23), 1–16. <https://doi.org/10.3390/molecules28237707>
- Forejtnikova, H., Vieillevoeye, M., Zermati, Y., Lambert, M., Pellegrino, R. M., Guihard, S., Gaudry, M., Camaschella, C., Lacombe, C., Roetto, A., & Mayeux, P. (2010). Transferrin Receptor 2 is a Component of the Erythropoietin Receptor Complex and is Required for Efficient Erythropoiesis. *Blood*, 116(24), 5357–5367. <https://doi.org/10.1182/blood-2010-04-281360>

- Galiacho, V. R., Maite Moreno Gamiz, & García-Ruiz, J. C. (2024). Pseudogaucher Cells in a Patient with α -Thalassemia Minor and S-Hemoglobin Carrier. *Hematology, Transfusion and Cell Therapy*, 46(5), S309–S310. <https://doi.org/10.1016/j.htct.2023.11.010>
- Garricksqq, M. D., Gnieckos, K., Liu, Y., Cohan, S., & Garrick, M. (1993). Transferrin and the Transferrin Cycle in Belgrade Rat Reticulocytes. *Journal of Biological Chemistry*, 268(20), 14867–14874. [https://doi.org/10.1016/S0021-9258\(18\)82413-9](https://doi.org/10.1016/S0021-9258(18)82413-9)
- Garstka, K., Potoczniak, G., Kozłowski, H., & Rowińska-Żyrek, M. (2024). *Aspergillus fumigatus* ZrfC Zn(II) Transporter Scavengers Zincophore-Bound Zn(II). *Dalton Transactions*, 53(6), 2848–2858. <https://doi.org/10.1039/d3dt04083f>
- Gibson, R. S., Rahmannia, S., Diana, A., Leong, C., Haszard, J. J., Hampel, D., Reid, M., Erhardt, J., Suryanto, A. H., Sofiah, W. N., Fathonah, A., Shahab-Ferdows, S., Allen, L. H., & Houghton, L. A. (2020). Association of Maternal Diet, Micronutrient Status, and Milk Volume with Milk Micronutrient Concentrations in Indonesian Mothers at 2 and 5 Months Postpartum. *American Journal of Clinical Nutrition*, 112(4), 1039–1050. <https://doi.org/10.1093/ajcn/nqaa200>
- Goff, J. P. (2018). Invited Review: Mineral Absorption Mechanisms, Mineral Interactions that Affect Acid–Base and Antioxidant Status, and Diet Considerations to Improve Mineral Status. *Journal of Dairy Science*, 101(4), 2763–2813. <https://doi.org/10.3168/jds.2017-13112>
- Gouda, S. A., & Taha, A. (2023). Biosorption of Heavy Metals as a New Alternative Method for Wastewater Treatment: A Review. *Egyptian Journal of Aquatic Biology & Fisheries*, 27(2), 135–153. <https://doi.org/10.21608/ejabf.2023.291671>
- Gulhar, R., Ashraf, M. A., & Jialal, I. (2023). *Physiology, Acute Phase Reactants*. StatPearls Publishing. <https://www.ncbi.nlm.nih.gov/books/NBK519570/>
- Gulyas, B. Z., Mogeni, B., Jackson, P., Walton, J., Caton, S. J., Gulyas, B. Z., Mogeni, B., Jackson, P., & Walton, J. (2025). Biofortification as a Food-Based Strategy to Improve Nutrition in High-Income Countries: A Scoping Review. *Critical Reviews in Food Science and Nutrition*, 65(25), 5027–5048. <https://doi.org/10.1080/10408398.2024.2402998>
- Hartanti, A. T., Rahayu, G., & Hidayat, I. (2015). *Rhizopus* Species from Fresh Tempeh Collected from Several Regions in Indonesia. *HAYATI Journal of Biosciences*, 22(3), 136–142. <https://doi.org/10.1016/j.hjb.2015.10.004>
- Hentze, M. W., Muckenthaler, M. U., Galy, B., & Camaschella, C. (2010). Review Two to Tango: Regulation of Mammalian Iron Metabolism. *Cell*, 142(1), 24–38. <https://doi.org/10.1016/j.cell.2010.06.028>

- Hesketh, J. E., Vasconcelos, M. H., & Bermano, G. (1998). Regulatory Signals in Messenger RNA: Determinants of Nutrient–Gene Interaction and Metabolic Compartmentation. *British Journal of Nutrition*, 80(4), 307–321. <https://doi.org/10.1017/S0007114598001378>
- Horváth, A., Tamási, K., Pap, R., Jánosa, G., & Pandur, E. (2026). Iron, the Essential Micronutrient: A Comprehensive Review of Regulatory Pathways of Iron Metabolism. *Nutrients*, 18(1), 1–27. <https://doi.org/10.3390/nu18010109>
- Hsu, M. Y., Mina, E., Roetto, A., & Porporato, P. E. (2020). Iron: An Essential Element of Cancer Metabolism. *Cells*, 9(12), 1–28. <https://doi.org/10.3390/cells9122591>
- Hu, S., & Rayman, M. P. (2017). Multiple Nutritional Factors and the Risk of Hashimoto’s Thyroiditis. *Thyroid*, 27(5), 1–47. <https://doi.org/10.1089/thy.2016.0635>
- Hurrell, R., & Egli, I. (2010). Iron Bioavailability and Dietary Reference Values. *The American Journal of Clinical Nutrition*, 91(5), 1461–1467. <https://doi.org/10.3945/ajcn.2010.28674F>
- Ibrahim, A., Spellberg, B., & Edwards, J. J. (2016). Iron Acquisition: A Novel Prospective on Mucormycosis Pathogenesis and Treatment. *Current Opinion in Infectious Diseases*, 21(6), 620–625. <https://doi.org/10.1097/QCO.0b013e3283165fd1.Iron>
- Jacob, C., Blaudez, D., Chalot, M., & Bellion, M. (2006). Extracellular and Cellular Mechanisms Sustaining Metal Tolerance in Ectomycorrhizal Fungi. *FEMS Microbiology Letters*, 254(2), 173–181. <https://doi.org/10.1111/j.1574-6968.2005.00044.x>
- Jamir, I., Ezung, L. Y., Merry, L., Tikendra, L., Devi, R. S., & Nongdam, P. (2024). Heavy Metals Clean Up: The Application of Fungi for Biosorption. *Geomicrobiology Journal*, 41(3), 201–212. <https://doi.org/10.1080/01490451.2024.2307899>
- Javed, S., Shahzadi, Z., Yousaf, Z., Anjum, I., Aftab, A., Hanif, S., Maqbool, Z., Ullah, R., Ahmer, M., & Iqbal, Z. (2024). Anti-Anemic Potential of *Eruca sativa* L. in Iron-Deficient Rat Model; Network Pharmacology Profiling. *Food Science & Nutrition*, 12(10), 7331–7346. <https://doi.org/10.1002/fsn3.4314>
- Jeanne, M. K., Harvey, L. M., & Itano, H. A. (1995). Difference in Rates of the Reaction of Various Mammalian Oxyhemoglobins with Phenylhydrazine. *Archives of Toxicology*, 69(3), 212–214. <https://doi.org/10.1007/s002040050161>
- Jeong, J., & Guerinot, M. Lou. (2008). Biofortified and Bioavailable: The Gold Standard for Plant-Based Diets. *Proceedings of the National Academy of Sciences (PNAS)*, 105(6), 1777–1778.

<https://doi.org/10.1073/pnas.0712330105>

- Jimenez, K., Kulnigg-Dabsch, S., & Gasche, C. (2015). Management of Iron Deficiency Anemia. *Gastroenterology and Hepatology*, *11*(4), 241–250.
- Johnson-wimbley, T. D., & Graham, D. Y. (2011). Diagnosis and Management of Iron Deficiency Anemia in the 21st Century. *Therapeutic Advances in Gastroenterology*, *4*(3), 177–184.
<https://doi.org/10.1177/1756283X11398736>
- Kalayci, S., & Muhammet, S. (2022). Determination of Some Trace Elements in Dried Red Plum Using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES). *Iranian Journal of Chemistry and Chemical Engineering*, *41*(11), 3742–3746.
<https://doi.org/10.30492/ijcce.2022.529125.4700>
- Kanamarlapudi, S. L. R. K., & Muddada, S. (2019). Application of Food-Grade Microorganisms for Addressing Deterioration Associated with Fortification of Food with Trace Metal. *International Journal of Food Properties*, *22*(1), 1146–1155. <https://doi.org/10.1080/10942912.2019.1628776>
- Kang, X., Kirui, A., Muszyński, A., Widanage, M., Dickwella, C., Chen, A., Azadi, P., Wang, P., Mentink-Vigier, F., & Wang, T. (2018). Molecular Architecture of Fungal Cell Walls Revealed by Solid-State NMR. *Nature Communications*, *9*(1), 1–12. <https://doi.org/10.1038/s41467-018-05199-0>
- Karimi, S., Soofiani, N. M., & Mahboubi, A. (2018). Use of Organic Wastes and Industrial By-Products to Produce Filamentous Fungi with Potential as Aqua-Feed Ingredients. *Sustainability*, *10*(9), 1–19.
<https://doi.org/10.3390/su10093296>
- Kasaoka, S., Yamagishi, H., & Kitano, T. (1999). Differences in the Effect of Iron-Deficient Diet on Tissue Weight, Hemoglobin Concentration and Serum Triglycerides in Fischer-344, Sprague-Dawley and Wistar Rats. *Journal of Nutritional Science and Vitaminology*, *45*(3), 359–366.
<https://doi.org/10.3177/jnsv.45.359>
- Kawabata, H., Yang, R., Hiramata, T., Vuong, P. T., Kawano, S., Gombart, A. F., & Koeffler, H. P. (1999). Molecular Cloning of Transferrin Receptor 2. *Journal of Biological Chemistry*, *274*(30), 20826–20832.
<https://doi.org/10.1074/jbc.274.30.20826>
- Kharate, B. R., & Dalvi, V. (2020). Estimation of Hemoglobin by Sahli's and Drabkin's Method. *IOSR Journal of Dental and Medical Sciences*, *19*(10), 20–22. <https://doi.org/10.9790/0853-1910122022>
- Kiewlicz, J., & Rybicka, I. (2020). Minerals and Their Bioavailability in Relation to Dietary Fiber, Phytates and Tannins from Gluten and Gluten-Free Flakes. *Food Chemistry*, *305*, 1–6. <https://doi.org/10.1016/j.foodchem.2019.125452>
- Kim, A., Fung, E., Parikh, S. G., Valore, E. V., Gabayan, V., Nemeth, E., & Ganz,

- T. (2014). A Mouse Model of Anemia of Inflammation: Complex Pathogenesis with Partial Dependence on Hepcidin. *Blood*, *123*(8), 1129–1136. <https://doi.org/10.1182/blood-2013-08-521419>.A.K.
- Köhrle, J. (2023). Selenium, Iodine and Iron—Essential Trace Elements for Thyroid Hormone Synthesis and Metabolism. *International Journal of Molecular Sciences*, *24*(4), 1–19. <https://doi.org/10.3390/ijms24043393>
- Kokubo, Y., Kisara, K., Yokoyama, Y., Akiyama, Y. O., Tada, Y., & Hida, A. (2016). Habitual Dietary Protein Intake Affects Body Iron Status in Japanese Female College Rhythmic Gymnasts: A Follow-up Study. *SpringerPlus*, *5*(862), 1–6. <https://doi.org/10.1186/s40064-016-2569-7>
- Kotla, N. K., & Dutta, P. (2022). The Role of Ferritin in Health and Disease: Recent Advances and Understandings. *Metabolites*, *12*(7), 1–11. <https://doi.org/10.3390/metabo12070609>
- Kriel, M., Opie, J., Rusch, J., Richardson, D., & Louw, V. (2025). Blood Reviews Old Tests and New Paradigms: How to Interpret Iron Studies and Related Biomarkers for the Diagnosis of Iron Deficiency in Adults. *Blood Reviews*, *74*, 1–9. <https://doi.org/10.1016/j.blre.2025.101337>
- Kumar, R., Chijina, K., Mohit, R., & Kumar, B. P. (2022). Fortification of Micronutrients in Chickpea (*Cicer arietinum* L.): Innovative Approaches to Combat Malnutrition. *The Pharma Innovation Journal*, *11*(6), 886–894.
- La'zaro, E., Santas, J., & Rafecas, M. (2017). Recovery from Dietary Iron Deficiency Anaemia in Rats by the Intake of Microencapsulated Ferric Saccharate. *Journal of Food Science and Technology*, *54*(9), 2913–2918. <https://doi.org/10.1007/s13197-017-2729-y>
- Latunde-Dada, G. O., Kajarabille, N., Rose, S., Arafsha, S. M., Kose, T., Aslam, M. F., Hall, W. L., & Sharp, P. A. (2023). Content and Availability of Minerals in Plant-Based Burgers Compared with a Meat Burger. *Nutrients*, *15*(12), 1–11. <https://doi.org/10.3390/nu15122732>
- Levi, S., & Rovida, E. (2015). Neuroferritinopathy: From Ferritin Structure Modification to Pathogenetic Mechanism. *Neurobiology of Disease*, *81*, 134–143. <https://doi.org/10.1016/j.nbd.2015.02.007>
- Li, Y., Jiang, H., & Huang, G. (2017). Protein Hydrolysates as Promoters of Non-Haem Iron Absorption. *Nutrients*, *9*(6), 1–18. <https://doi.org/10.3390/nu9060609>
- Lima, T. M. De, Almeida, A. B. De, Peres, D. S., Oliveira, R. M. da S. F. de, Sousa, T. L. De, Egea, M. B., Silva, B., Freitas, B. S. M. de, Silva, F. G., & Egea, M. B. (2021). *Rhizopus oligosporus* as A Biotransforming Microorganism of *Anacardium othonianum* Rizz. Byproduct for Production of High-Protein, Antioxidant, and Fiber Ingredient. *LWT - Food Science and Technology*, *135*, 1–8. <https://doi.org/10.1016/j.lwt.2020.110030>

- Lo, P., Trolle, E., & Jakobsen, J. (2022). Nutrient Content in Plant-Based Protein Products Intended for Food Composition Databases. *Journal of Food Composition and Analysis*, *106*, 1–10. <https://doi.org/10.1016/j.jfca.2021.104332>
- Mannar, M. G. V., & Hurrell, R. F. (2018). Food Fortification: Past Experience, Current Status, and Potential for Globalization. In *Food Fortification in a Globalized World* (pp. 3–11). Academic Press. <https://doi.org/10.1016/B978-0-12-802861-2.00001-8>
- Manzoor, M. F., Ali, A., Ain, H. B. U., Kausar, S., Khalil, A. A., Aadil, R. M., & Zeng, X.-A. (2024). Bioaccessibility Mechanisms, Fortification Strategies, Processing Impact on Bioavailability, and Therapeutic Potentials of Minerals in Cereals. *Future Foods*, *10*, 1–17. <https://doi.org/10.1016/j.fufo.2024.100425>
- Miller, D. N., Bryant, J. E., Madsen, E. L., & Al, M. E. T. (1999). Evaluation and Optimization of DNA Extraction and Purification Procedures for Soil and Sediment Samples. *Applied and Environmental Microbiology*, *65*(11), 4715–4724. <https://doi.org/10.1128/AEM.65.11.4715-4724.1999>
- Misslinger, M., Hortschansky, P., Brakhage, A. A., & Haas, H. (2021). Research Fungal Iron Homeostasis with a Focus on *Aspergillus fumigatus*. *BBA - Molecular Cell Research*, *1868*(1), 1–23. <https://doi.org/10.1016/j.bbamcr.2020.118885>
- Mohammed, O., Dyab, N., Kheadr, E., & Dabour, N. (2021). Effectiveness of Inulin-Type on The Iron Bioavailability in Anemic Female Rats Fed Bio-Yogurt. *RSC Advances*, *11*(4), 1928–1938. <https://doi.org/10.1039/d0ra08873k>
- Momin, A., Ahmad, R., Farooq, U., Anees, M., Aysha, R., Rashid, S., & Ahmed, W. (2022). Co-administration of Inulin and Iron Fortificants Improves Iron Deficiency Biomarkers in Female Sprague Dawley Rats. *Food Science & Nutrition*, *10*(7), 2141–2148. <https://doi.org/10.1002/fsn3.2337>
- Monroy-gomez, J., Ferraboschi, C., Zutphen, K. G. Van, & Gavin-smith, B. (2022). Small and Medium Enterprises' Perspectives on Food Fortification Amid the Growing Burden of Malnutrition. *Nutrients*, *14*, 1–15. <https://doi.org/10.3390/nu14183837>
- Monsen, E. R., Hallberg, L., Layrisse, M., Hegsted, D. M., Cook, J. D., Mertz, W., & Finch, C. A. (1978). Estimation of Available Dietary Iron. *The American Journal of Clinical Nutrition*, *31*(1), 134–141. <https://doi.org/10.1093/ajcn/31.1.134>
- Moreno-fernandez, J., Javier, D., Alf, J. M., & Inmaculada, L. (2019). Iron Deficiency and Neuroendocrine Regulators of Basal Metabolism, Body Composition and Energy Expenditure in Rats. *Nutrients*, *11*(3), 1–14. <https://doi.org/10.3390/nu11030631>

- Moretti, D., Biebinger, R., Bruins, M. J., Hoeft, B., & Kraemer, K. (2014). Bioavailability of Iron, Zinc, Folic Acid, and Vitamin A from Fortified Maize. *Annals of the New York Academy of Sciences*, 1312(1), 54–65. <https://doi.org/10.1111/nyas.12297>
- Moum, B., & Lindgren, S. (2025). Iron Deficiency and Iron Deficiency Anemia in Chronic Disease—Common, Important, and Treatable. *Journal of Clinical Medicine*, 14(13), 1–10. <https://doi.org/10.3390/jcm14134519>
- Muckenthaler, M. U., Rivella, S., Hentze, M. W., & Galy, B. (2016). A Red Carpet for Iron Metabolism. *Cell*, 168(3), 344–361. <https://doi.org/10.1016/j.cell.2016.12.034>
- Muszyński, S., Tomaszewska, E., Kwiecień, M., Dobrowolski, P., & Tomczyk, A. (2018). Effect of Dietary Phytase Supplementation on Bone and Hyaline Cartilage Development of Broilers Fed with Organically Complexed Copper in a Cu-Deficient Diet. *Biol Trace Elem Res.*, 182(2), 339–353. <https://doi.org/10.1007/s12011-017-1092-1>
- Namdeti, R. (2023). A Review on Removal of Heavy Metals by Biosorption: A Green Technology. *International Journal of Research and Review*, 10(3), 531–543. <https://doi.org/10.52403/ijrr.20230360>
- Naz, N., Khan, M. R., Shabbir, M. A., & Faisal, M. N. (2023). Effect of Iron-Fortified Jamun Leather on the Asunra-Induced Anemia in Sprague Dawley Rats. *Frontiers in Nutrition*, 10(4), 1–9. <https://doi.org/10.3389/fnut.2023.1195981>
- Nollet, L., Klis, J. D. Van Der, Lensing, M., & Spring, P. (2007). The Effect of Replacing Inorganic With Organic Trace Minerals in Broiler Diets on Productive Performance and Mineral Excretion. *Poultry Science*, 16(4), 592–597. <https://doi.org/10.3382/japr.2006-00115>
- Ofori, K. F., Antonello, S., English, M. M., & Aryee, A. N. A. (2022). Improving Nutrition through Biofortification—A Systematic Review. *Front. Nutr.*, 9, 1–20. <https://doi.org/10.3389/fnut.2022.1043655>
- Ogun, A. S., & Adeyinka, A. (2025). *Biochemistry, Transferrin*. StatPearls Publishing. <https://www.ncbi.nlm.nih.gov/books/NBK532928/>
- Olga, L., Sovio, U., Wong, H., Smith, G. C. S., & Aiken, C. E. M. (2024). Association Between Maternal Hemoglobin Concentration and Educational Attainment in Mid-Childhood in a High-Resource Obstetric Setting: A Prospective Cohort Study. *American Journal of Obstetrics and Gynecology MFM*, 6(5), 1–8. <https://doi.org/10.1016/j.ajogmf.2024.101357>
- Oliveira, F., Rocha, S., & Fernandes, R. (2014). Iron Metabolism: From Health to Disease. *Journal of Clinical Laboratory Analysis*, 28(3), 210–218. <https://doi.org/10.1002/jcla.21668>
- Olson, R., Gavin-smith, B., Ferraboschi, C., & Kraemer, K. (2021). Food

- Fortification: The Advantages, Disadvantages and Lessons from Sight and Life Programs. *Nutrients*, 13(4), 1–12. <https://doi.org/10.3390/nu13041118>
- Pasricha, S. R., Tye-Din, J., Muckenthaler, M. U., & Swinkels, D. W. (2021). Iron Deficiency. *The Lancet*, 397(10270), 233–248. [https://doi.org/10.1016/S0140-6736\(20\)32594-0](https://doi.org/10.1016/S0140-6736(20)32594-0)
- Philpott, C. C. (2006). Iron Uptake in Fungi: A System for Every Source. *BBA - Molecular Cell Research*, 1763(7), 636–645. <https://doi.org/10.1016/j.bbamcr.2006.05.008>
- Pirman, T., Lenardi, A., Svete, A. N., & Horvat, S. (2021). Supplementation with >Your< Iron Syrup Corrects Iron Status in a Mouse Model of Diet-Induced Iron Deficiency. *Biology*, 10, 1–19. <https://doi.org/10.3390/biology10050357>
- Radziejewska, A., Suliburska, J., Kołodziejski, P., & Chmurzynska, A. (2020). Simultaneous Supplementation with Iron and Folic Acid can Affect *Slc11a2* and *Slc46a1* Transcription and Metabolite Concentrations in Rats. *British Journal of Nutrition*, 123, 264–272. <https://doi.org/10.1017/S0007114519002721>
- Rao, J., & Jagadeesan, V. (1995). Development of a Rat Model for Iron Deficiency and Toxicological Studies: Comparison among Fischer 344, Wistar, and Sprague Dawley Strains. *Laboratory Animal Science*, 45(4), 393–397.
- Reddy, M. B., & Armah, S. M. (2018). Impact of Iron-Enriched *Aspergillus oryzae* on Iron Bioavailability, Safety and Gut Microbiota in Rats. *Journal of Agricultural and Food Chemistry*, 66(24), 6213–6218. <https://doi.org/10.1021/acs.jafc.8b01758>
- Richards, J. D., Zhao, J., Harrell, R. J., Atwell, C. A., & Dibner, J. J. (2010). Trace Mineral Nutrition in Poultry and Swine. *Asian-Australasian Journal of Animal Sciences*, 23(11), 1527–1534. <https://doi.org/10.5713/ajas.2010.r.07>
- Rifkind, R. (1965). Heinz Body Anemia: An Ultrastructural Study. II. Red Cell Sequestration and Destruction. *Blood*, 26(4), 433–448. <https://doi.org/10.1182/blood.V26.4.433.433>
- Rifkind, R. A., & Danon, D. (1965). Heinz Body Anemia—An Ultrastructural Study. I. Heinz Body Formation. *Blood*, 25(6), 885–896. <https://doi.org/10.1182/blood.V25.6.885.885>
- Rönn, T., Lendemans, S., Groot, H. De, & Petrat, F. (2011). A New Model of Severe Hemorrhagic Shock in Rats. *Comparative Medicine*, 61(5), 419–426.
- Rusch, J. A., Westhuizen, D. J. Van Der, Gill, R. S., & Louw, V. J. (2023). Diagnosing Iron Deficiency: Controversies and Novel Metrics. *Best Practice & Research Clinical Anaesthesiology*, 37(4), 451–467. <https://doi.org/10.1016/j.bpa.2023.11.001>
- Sabatino, L., & Vassalle, C. (2025). Thyroid Hormones and Metabolism

- Regulation: Which Role on Brown Adipose Tissue and Browning Process? *Biomolecules*, *15*(3), 1–16. <https://doi.org/10.3390/biom15030361>
- Saito, H. (2014). Metabolism of Iron Stores. *Nagoya Journal of Medical Science*, *76*(3–4), 235–254.
- Schubert, T., Echtenacher, B., Hofstädter, F., & Männel, D. N. (2003). TNF-Independent Development of Transient Anemia of Septic Peritonitis. *Laboratory Investigation*, *83*(12), 1743–1750. <https://doi.org/10.1097/01.LAB.0000101693.12149.2C>
- Schwartz, A. J., Converso-baran, K., Michele, D. E., & Shah, Y. M. (2019). A Genetic Mouse Model of Severe Iron Deficiency Anemia Reveals Tissue-Specific Transcriptional Stress Responses and Cardiac Remodeling. *Journal of Biological Chemistry*, *294*(41), 14991–15002. <https://doi.org/10.1074/jbc.RA119.009578>
- Shvartsman, M., Bilica, S., & Lancrin, C. (2019). Iron Deficiency Disrupts Embryonic Haematopoiesis but not the Endothelial to Haematopoietic Transition. *Scientific Reports*, *9*, 1–12. <https://doi.org/10.1038/s41598-019-42765-y>
- Simoneau, J., Tay, C., Wheeler, A., Amos, L., McCormick, M., Collado, Y., Brown, M., & Weyand, A. C. (2024). Association Between Hemoglobin Values and VWF Assays: A Multicenter Investigation. *Blood Advances*, *8*(5), 1152–1154. <https://doi.org/10.1182/bloodadvances.2023011910>
- Singh, P., & Prasad, S. (2023). A Review on Iron, Zinc and Calcium Biological Significance and Factors Affecting Their Absorption and Bioavailability. *Journal of Food Composition and Analysis*, *123*, 1–11. <https://doi.org/10.1016/j.jfca.2023.105529>
- Swain, J. H., Glosser, L. D., Jang, C. J., Nemeth, R. C., Bethi, A. R., Zheng, E. L., Boron, E. R., & Fox, H. M. (2024). An Electrolytic Elemental Iron Powder Effectively Regenerates Hemoglobin in Anemic Rats and Is Relatively Well Absorbed When Compared to Ferrous Sulfate Monohydrate. *Nutrients*, *16*(7), 1–11. <https://doi.org/10.3390/nu16172833>
- Tang, P., & Wang, H. (2023). Regulation of Erythropoiesis: Emerging Concepts and Therapeutic Implications. *Hematology*, *28*(1), 1–14. <https://doi.org/10.1080/16078454.2023.2250645>
- Tussing-Humphreys, L., Pustacioglu, C., Nemeth, E., & Braunschweig, C. (2012). Rethinking Iron Regulation and Assessment in Iron Deficiency, Anemia of Chronic Disease, and Obesity: Introducing Hcpidin. *Journal of the Academy of Nutrition and Dietetics*, *112*(3), 391–400. <https://doi.org/10.1016/j.jada.2011.08.038>
- Vicente-franqueira, R., Amich, J., Marín, L., Sánchez, C. I., Leal, F., & Calera, J. A. (2018). The Transcription Factor ZafA Regulates the Homeostatic and

- Adaptive Response to Zinc Starvation in *Aspergillus fumigatus*. *Genes*, 9(7), 1–33. <https://doi.org/10.3390/genes9070318>
- Vicente-franqueira, R., Leal, F., Marín, L., Sánchez, C. I., & Calera, J. A. (2019). The Interplay between Zinc and Iron Homeostasis in *Aspergillus fumigatus* Under Zinc-Replete Conditions Relies on the Iron-Mediated Regulation of Alternative Transcription units of *zafA* and the Basal Amount of the ZafA Zinc-Responsiveness Transcription Fac. *Environmental Microbiology*, 21(8), 2787–2808. <https://doi.org/10.1111/1462-2920.14618>
- Vogt, A. S., Arsiwala, T., Mohsen, M., Vogel, M., Manolova, V., & Bachmann, M. F. (2021). On Iron Metabolism and Its Regulation. *International Journal of Molecular Sciences*, 22(9), 1–17. <https://doi.org/10.3390/ijms22094591>
- Walker, L., Sood, P., Lenardon, M. D., Milne, G., Olson, J., Jensen, G., Wolf, J., Casadevall, A., Adler-Moore, J., & Gow, N. A. R. (2018). The Viscoelastic Properties of the Fungal Cell Wall allow Traffic of Ambisome as Intact Liposome Vesicles. *MBio*, 9(1), 1–15. <https://doi.org/10.1128/mBio.02383-17>
- Wallace, R. D., Barger, C. T., Moorhead, D. J., Laforest, J. H., Wallace, R. D., Barger, C. T., & Moorhead, D. J. (2016). I've Got 1: Reporting and Tracking Invasive Species in Florida. *Southeastern Naturalist*, 15(8), 51–62. <https://doi.org/10.1656/058.015.sp805>
- Wang, R., Rousta, N., Mahboubi, A., Fristedt, R., Undeland, I., Sandberg, A., & Taherzadeh, M. J. (2024). *In Vitro* Protein Digestibility and Mineral Accessibility of Edible Filamentous Fungi Cultivated in Oat Flour. *NFS Journal*, 36, 1–9. <https://doi.org/10.1016/j.nfs.2024.100189>
- Wang, X., Garrick, M. D., & Collins, J. F. (2019). Animal Models of Normal and Disturbed Iron and Copper Metabolism. *Journal of Nutrition*, 149(12), 2085–2100. <https://doi.org/10.1093/jn/nxz172>
- WHO (World Health Organization). (2020). *WHO Guideline on Use of Ferritin Concentrations to Assess Iron Status in Individuals and Populations* (WHO (ed.); Vol. 17).
- WHO (World Health Organization). (2024). *Guideline on Haemoglobin Cutoffs to Define Anaemia in Individuals and Populations* (WHO (ed.)).
- WHO (World Health Organization). (2025). *Anaemia*. World Health Organization. <https://www.who.int/news-room/fact-sheets/detail/anaemia>
- Wikandari, R., Millati, R., Lennartsson, P. R., Harmayani, E., & Taherzadeh, M. J. (2012). Isolation and Characterization of Zygomycetes Fungi from Tempe for Ethanol Production and Biomass Applications. *Applied Biochemistry and Biotechnology*, 167, 1501–1512. <https://doi.org/10.1007/s12010-012-9587-x>
- Wikandari, R., Nisrina, H., Setiowati, A. D., & Millati, R. (2025). Enhanced Bioaccumulation of Essential Minerals in Filamentous Fungal Biomass During Cultivation to Produce High Quality Vegan Food. *Polish Journal of*

Food and Nutrition Sciences, 75(3), 274–282.
<https://doi.org/10.31883/pjfn/209007>

- Wikandari, R., Tanugraha, D. R., Yastanto, A. J., Manikharda, Gmoser, R., & Teixeira, J. A. (2023). Development of Meat Substitutes from Filamentous Fungi Cultivated on Residual Water of Tempeh Factories. *Molecules*, 28(3), 1–11. <https://doi.org/10.3390/molecules28030997>
- Yaqoob, M. U., Wang, G., Sun, W., Pei, X., Liu, L., Tao, W., Xiao, Z., Wang, M., Huai, M., Li, L., & Pelletier, W. (2014). Effects of Inorganic Trace Minerals Replaced by Complexed Glycinates on Reproductive Performance, Blood Profiles, and Antioxidant Status in Broiler Breeders. *Poultry Science*, 99(5), 2718–2726. <https://doi.org/10.1016/j.psj.2019.11.058>
- Yasmin, S., Abt, B., Schrettl, M., Moussa, T. A. A., Werner, E. R., & Haas, H. (2009). The Interplay Between Iron and Zinc Metabolism in *Aspergillus fumigatus*. *Fungal Genetics and Biology*, 46(9), 707–713. <https://doi.org/10.1016/j.fgb.2009.05.003>
- Younis, K., Ahmad, S., & Badpa, A. (2015). Malnutrition: Causes and Strategies. *Journal of Food Processing & Technology*, 6(4), 1–8. <https://doi.org/10.4172/2157-7110.1000434>
- Yulia, M., Yunita, D., Indarti, E., Muliani, S., & Lahmer, R. A. (2024). Medium Modification for The Growth of *Rhizopus oligosporus* and *Acetobacter xylinum* as Starter Cultures in The Production of Biofoam, Environmentally Friendly Packaging. *IOP Conf. Series: Earth and Environmental Science*, 1290, 1–6. <https://doi.org/10.1088/1755-1315/1290/1/012028>
- Zhang, J., Wu, Y., Tang, H., Li, H., Da, S., Ciren, D., Peng, X., & Zhao, K. (2024). Identification, Characterization, and Insights into the Mechanism of Novel Dipeptidyl Peptidase-IV Inhibitory Peptides from Yak Hemoglobin by *In Silico* Exploration, Molecular Docking, and *In Vitro* Assessment. *International Journal of Biological Macromolecules*, 259, 1–12. <https://doi.org/10.1016/j.ijbiomac.2023.129191>