



DAFTAR PUSTAKA

- Abbasi, F., Leitch, J.J., Su, Z.F., Szymanski, G., dan Lipkowski, J., 2018, Direct visualization of alamethicin ion pores formed in a floating phospholipid membrane supported on a gold electrode surface, *Electrochimica Acta*, 267, 195–205.
- Adélaïde, M., Salnikov, E., Ramos-Martín, F., Aisenbrey, C., Sarazin, C., Bechinger, B., dan D'Amelio, N., 2023, The mechanism of action of SAAP-148 antimicrobial peptide as studied with NMR and molecular dynamics simulations, *Pharmaceutics*, 15 (3), 15030761.
- Adeyeye, S.A.O., 2016, Fungal mycotoxins in foods: a review, *Cogent Food and Agriculture*, 15 (3), 76.
- Agarwal, G. dan Gabrani, R., 2021, Antiviral peptides: identification and validation, *International Journal of Peptide Research and Therapeutics*, 27 (1), 149–168.
- Agarwal, S. dan Mehrotra, R., 2016, An overview of molecular docking, *JSM Chemistry*, 4 (2).
- Ahmed, A.S., El-Bassiony, T., Elmalt, L.M., dan Ibrahim, H.R., 2015, Identification of potent antioxidant bioactive peptides from goat milk proteins, *Food Research International*, 74, 80–88.
- Aizaz, M., Nisar, M., Zafar, R., Shan, S., Fatima, N., Arshad, I., dan Yang, G., 2023, Interaction analysis of TRIM proteins and innate immunity mediators of common carp (*Cyprinus carpio* L.) to evaluate its affinity for ubiquitination and innate immune response, *Aquaculture*, 575.
- Al-Saadi, J.S., Shaker, K.A., dan Ustunol, Z., 2014, Effect of heat and transglutaminase on solubility of goat milk protein-based films, *International Journal of Dairy Technology*, 67 (3), 420–426.
- Algboory, H.L. dan Muhialdin, B.J., 2021, Novel peptides contribute to the antimicrobial activity of camel milk fermented with *Lactobacillus plantarum* IS10, *Food Control*, 126.
- Allen, J. dan Pellois, J.P., 2022, Hydrophobicity is a key determinant in the activity of arginine-rich cell penetrating peptides, *Scientific Reports*, 12 (1), 1–12.
- Amos, S.B.T.A., Vermeer, L.S., Ferguson, P.M., Kozlowska, J., Davy, M., Bui, T.T., Drake, A.F., Lorenz, C.D., dan Mason, A.J., 2016, Antimicrobial peptide potency is Facilitated by Greater Conformational Flexibility when Binding to Gram-negative Bacterial Inner Membranes, *Scientific Reports*, 6, 37639.
- Antony, P. dan Vijayan, R., 2021, Bioactive peptides as potential nutraceuticals for diabetes therapy: a comprehensive review, *International Journal of Molecular Sciences*, 22 (16).



- Arnittali, M., Rissanou, A.N., dan Harmandaris, V., 2019, Structure of biomolecules through molecular dynamics simulations, *Procedia Computer Science*, 156, 69–78.
- Arulrajah, B., Muhialdin, B.J., Qoms, M.S., Zarei, M., Hussin, A.S.M., Hasan, H., dan Saari, N., 2021, Production of cationic antifungal peptides from kenaf seed protein as natural bio preservatives to prolong the shelf-life of tomato puree, *International Journal of Food Microbiology*, 359.
- Arulrajah, B., Qoms, M.S., Muhialdin, B.J., Zarei, M., Hussin, A.S.M., Hasan, H., Chau, D.M., Ramasamy, R., dan Saari, N., 2023, Antifungal efficacy of kenaf seed peptides mixture in cheese, safety assessment and unravelling its action mechanism against food spoilage fungi, *Food Bioscience*, 52, 102395.
- Asri, M. N., Muhialdin, B.J., Zarei, M., dan Saari, N., 2020, Low molecular weight peptides generated from palm kernel cake via solid state lacto-fermentation extend the shelf life of bread, *LWT - Food Science and Technology*, 134.
- Astrakas, L., Gousias, C., dan Tzaphlidou, M., 2011, Electric field effects on chignolin conformation, *Journal of Applied Physics*, 109 (9).
- Bahar, A.A. dan Ren, D., 2013, Antimicrobial peptides, *Pharmaceuticals*, 6 (12), 1543–1575.
- Bali, E.B., Açık, L., Akca, G., Sarper, M., Elçi, M.P., Avcu, F., dan Vural, M., 2014, Antimicrobial activity against periodontopathogenic bacteria, antioxidant and cytotoxic effects of various extracts from endemic *Thermopsis turcica*, *Asian Pacific Journal of Tropical Biomedicine*, 4 (7), 505–514.
- Balouiri, M., Sadiki, M., dan Ibnsouda, S.K., 2016, Methods for in vitro evaluating antimicrobial activity: A review, *Journal of Pharmaceutical Analysis*, 6 (2), 71–79.
- Banerjee, S. dan Mazumdar, S., 2012, Electrospray ionization mass spectrometry: a technique to access the information beyond the molecular weight of the analyte, *International Journal of Analytical Chemistry*, 1–40.
- Bao, Z. jie, Zhao, Y., Wang, X. ying, dan Chi, Y.J., 2017, Effects of degree of hydrolysis (DH) on the functional properties of egg yolk hydrolysate with alcalase, *Journal of Food Science and Technology*, 54 (3), 669–678.
- Berendsen, H.J.C., Postma, J.P.M., Van Gunsteren, W.F., Dinola, A., dan Haak, J.R., 1984, Molecular dynamics with coupling to an external bath, *The Journal of Chemical Physics*, 81 (8), 3684–3690.
- Bezerra, V.S., Campos, J.F., da Silva, R.A., Porto, T.S., de Lima Filho, J.L., dan Porto, A.L.F., 2013, Biotechnological richness of the northeastern semi-arid region: antioxidant activity of casein hydrolysates from moxotó goat milk (*Capra hircus Linnaeus*, 1758) obtained by papain action, *Food Science Technology*, 33 (3),



513–520.

- Bhandari, D., Rafiq, S., Gat, Y., Gat, P., Waghmare, R., dan Kumar, V., 2020, A Review on bioactive peptides: physiological functions, bioavailability and safety, *International Journal of Peptide Research and Therapeutics*, 26 (1), 139–150.
- Birkemo, G.A., O’Sullivan, O., Ross, R.P., dan Hill, C., 2009, Antimicrobial activity of two peptides casecidin 15 and 17, found naturally in bovine colostrum, *Journal of Applied Microbiology*, 106 (1), 233–240.
- Bittrich, S., Bhikadiya, C., Bi, C., Chao, H., Duarte, J.M., Dutta, S., Fayazi, M., Henry, J., Khokriakov, I., Lowe, R., Piehl, D.W., Segura, J., Vallat, B., Voigt, M., Westbrook, J.D., Burley, S.K., dan Rose, Y., 2023, RCSB protein data bank: efficient searching and simultaneous access to one million computed structure models alongside the PDB structures enabled by architectural advances: RCSB protein data bank: architectural advances, *Journal of Molecular Biology*, 435 (14).
- Bougatef, A., Balti, R., Haddar, A., Jellouli, K., Souissi, N., dan Nasri, M., 2012, Protein hydrolysates from bluefin tuna (*Thunnus thynnus*) heads as influenced by the extent of enzymatic hydrolysis, *Biotechnology and Bioprocess Engineering*, 17 (4), 841–852.
- Brini, M., Calì, T., Ottolini, D., dan Carafoli, E., 2013, The plasma membrane calcium pump in health and disease, *FEBS Journal*, 280 (21), 5385–5397.
- Brini, M. dan Carafoli, E., 2009, Calcium pumps in health and disease, *Physiological Reviews*, 89 (4), 1341–1378.
- Brunelle, J.L. dan Green, R., 2014, One-dimensional SDS-polyacrylamide gel electrophoresis (1D SDS-PAGE)., In, *Methods in Enzymology*. Academic Press Inc., 151–159.
- Bublitz, M., Kjellerup, L., Cohrt, K.O.H., Gordon, S., Mortensen, A.L., Clausen, J.D., Pallin, T.D., Hansen, J.B., Fuglsang, A.T., Dalby-Brown, W., dan Winther, A.M.L., 2018, Tetrahydrocarbazoles are a novel class of potent P-type ATPase inhibitors with antifungal activity, *Public Library of Science ONE*, 13 (1), 1–21.
- Cabrera, M.P.D.S., Rangel, M., Neto, J.R., dan Konno, K., 2019, Chemical and biological characteristics of antimicrobial α -helical peptides found in solitary wasp venoms and their interactions with model membranes, *Toxins*, 11 (10).
- Campagna, S., Mathot, A.G., Fleury, Y., Girardet, J.M., dan Gaillard, J.L., 2004, Antibacterial activity of lactophorin, a synthetic 23-residues peptide derived from the sequence of bovine milk component-3 of proteose peptone, *Journal of Dairy Science*, 87 (6), 1621–1626.
- Carter, A.C., King, J.B., Mattes, A.O., Cai, S., Singh, N., dan Cichewicz, R.H., 2019, Natural-product-inspired compounds as countermeasures against the liver carcinogen aflatoxin B1, *Journal of Natural Products*, 82 (6), 1694–1703.



- Carvajal-Moreno, M., 2015, Metabolic Changes of Aflatoxin B1 to become an Active Carcinogen and the Control of this Toxin, *Immunome Research*, 11 (3).
- Cashman-Kadri, S., Lagüe, P., Fliss, I., dan Beaulieu, L., 2022, Determination of the relationships between the chemical structure and antimicrobial activity of a GAPDH-related fish antimicrobial peptide and analogs thereof, *Antibiotics*, 11 (3).
- Casteel, P., Ampe, C., Riviere, L., van Damme, J., Elicone, C., Fleming, M., Jacobs, F., dan Tempst, P., 1990, Isolation and characterization of abaecin, a major antibacterial response peptide in the honeybee (*Apis mellifera*), *European Journal of Biochemistry*, 187 (2), 381–386.
- Chakraborty, A., Kobzev, E., Chan, J., De Zoysa, G.H., Sarojini, V., Pigget, T.J., dan Allison, J.R., 2021, Molecular dynamics simulation of the interaction of two linear battacin analogs with model gram-positive and Gram-negative bacterial cell membranes, *ACS Omega*, 6 (1), 388–400.
- Charoenphun, N., Cheirsilp, B., Sirinupong, N., dan Youravong, W., 2013, Calcium-binding peptides derived from tilapia (*Oreochromis niloticus*) protein hydrolysate, *European Food Research and Technology*, 236 (1), 57–63.
- Chaudhary, D. V., Patel, D.P., Shah, P.A., Shah, J. V., Sanyal, M., dan Srivastav, P.S., 2016, Determination of lercanidipine in human plasma by an improved UPLC-MS/MS method for a bioequivalence study, *Journal of Pharmaceutical Analysis*, 6 (2), 87–94.
- Chen, F., Zhang, F., Wang, A., Li, H., Wang, Q., Zeng, Z., Wang, S., dan Xie, T., 2010, Recent progress in the chemo-enzymatic peptide synthesis, *African Journal of Pharmacy and Pharmacology*, 4 (10), 721–730.
- Cherry, M.A., Higgins, S.K., Melroy, H., Lee, H.S., dan Pokorny, A., 2014, Peptides with the same composition, hydrophobicity, and hydrophobic moment bind to phospholipid bilayers with different affinities, *Journal of Physical Chemistry B*, 118 (43), 12462–12470.
- Chia, B.C.S., Gong, Y., Bowie, J.H., Zuegg, J., dan Cooper, M.A., 2011, Membrane binding and perturbation studies of the antimicrobial peptides caerin, citropin, and maculatin, *Biopolymers*, 96 (2), 147–157.
- Ciemny, M.P., Debinski, A., Paczkowska, M., Kolinski, A., Kurcinski, M., dan Kmiecik, S., 2016, Protein-peptide molecular penambatan with large-scale conformational changes: The p53-MDM2 interaction, *Scientific Reports*, 6, 2–9.
- Cob-Calán, N.N., Chi-Uluac, L.A., Ortiz-Chi, F., Cerqueda-García, D., Navarrete-Vázquez, G., Ruiz-Sánchez, E., dan Hernández-Núñez, E., 2019, Molecular penambatan and dynamics simulation of protein β-tubulin and antifungal cyclic lipopeptides, *Molecules*, 24 (18), 1–10.



- Corrêa, J.A.F., Evangelista, A.G., Nazareth, T. de M., dan Luciano, F.B., 2019, Fundamentals on the molecular mechanism of action of antimicrobial peptides, *Materialia*, 8.
- Cottrell, J.S., 2011, Protein identification using MS/MS data, *Journal of Proteomics*, 74 (10), 1842–1851.
- Csapó, J. dan Albert, C., 2005, Separation and determination of the amino acids by ion exchange column chromatography applying postcolumn derivatization, *Acta Agraria Kaposváriensis*, 9 (2), 33–51.
- Csepregi, R., Lemli, B., Kunsági-Máté, S., Szente, L., Koszegi, T., Németi, B., dan Poór, M., 2018, Complex formation of resorufin and resazurin with β-cyclodextrins: can cyclodextrins interfere with a resazurin cell viability assay, *Molecules*, 23 (2), 1–16.
- Daroit, D.J. dan Brandelli, A., 2021, In vivo bioactivities of food protein-derived peptides – a current review, *Current Opinion Food Science*, 39, 120–129.
- Darvishi, F., Beiranvand, E., Kalhor, H., Shahbazi, B., dan Mafakher, L., 2024, Homology modeling and molecular penambatan studies to decrease glutamine affinity of *Yarrowia lipolytica* L-asparaginase, *International Journal of Biological Macromolecules*, 263, 1–14.
- De Melo, E.T., Estrela, A.B., Santos, E.C.G., Machado, P.R.L., Farias, K.J.S., Torres, T.M., Carvalho, E., Lima, J.P.M.S., Silva-Júnior, A.A., Barbosa, E.G., dan Fernandes-Pedrosa, M.D.F., 2015, Structural characterization of a novel peptide with antimicrobial activity from the venom gland of the scorpion *Tityus stigmurus*: Stigmurin, *Peptides*, 68, 3–10.
- Deng, Y., Gruppen, H., dan Wierenga, P.A., 2018, Comparison of protein hydrolysis catalyzed by bovine, porcine, and human trypsins, *Journal of Agricultural and Food Chemistry*, 66 (16), 4219–4232.
- Dennison, S., Wallace, J., Harris, F., dan Phoenix, D., 2005, Amphiphilic alpha-helical antimicrobial peptides and their structure/function relationships, *Protein & Peptide Letters*, 12 (1), 31–39.
- Devi, M.S. dan Sashidhar, R.B., 2019, Antiaflatoxigenic effects of selected antifungal peptides, *Peptides*, 115, 15–26.
- Devi, S., Raj, N., dan Sashidhar, R.B., 2021, Efficacy of short-synthetic antifungal peptides on pathogenic *Aspergillus flavus*, *Pesticide Biochemistry and Physiology*, 174, 104810.
- De Vivo, M., Masetti, M., Bottegoni, G., dan Cavalli, A., 2016, Role of molecular dynamics and related methods in drug discovery, *Journal of Medicinal Chemistry*, 59 (9), 4035–4061.



- Diharce, J., Cueto, M., Beltramo, M., Aucagne, V., dan Bonnet, P., 2019, In silico peptide ligation: Iterative residue penambatan and linking as a new approach to predict protein-peptide interactions, *Molecules*, 24 (7), 1351.
- Dijksteel, G.S., Ulrich, M.M.W., Middelkoop, E., dan Boekema, B.K.H.L., 2021, Review: lessons learned from clinical trials using antimicrobial peptides (AMPs), *Frontiers in Microbiology*, 12, 616979.
- Dini, I., De Biasi, M.G., dan Mancusi, A., 2022, An overview of the potentialities of antimicrobial peptides derived from natural sources, *Antibiotics*, 11 (11), 1–22.
- Doellinger, J., Schneider, A., Hoeller, M., dan Lasch, P., 2020, Sample preparation by easy extraction and digestion (SPEED) - A universal, rapid, and detergent-free protocol for proteomics based on acid extraction, *Molecular and Cellular Proteomics*, 19 (1), 209–222.
- Dominguez, L., Foster, L., Straub, J.E., dan Thirumalai, D., 2016, Impact of membrane lipid composition on the structure and stability of the transmembrane domain of amyloid precursor protein, *Proceedings of the National Academy of Sciences of the United States of America*, 113 (36), E5281–E5287.
- Elyass, M.E., Mahdi, A.A., Semeih, A.E., Eltaib, F.I., dan Attitalla, I.H., 2021, Exploratory investigation on the antibacterial effect of antimicrobial peptides of four mammalian plasmas, *Microbial Pathogenesis*, 156, 104839.
- English, Tilton, E.C., Ricard, B.J., dan Whitten, S.T., 2016, Intrinsic α helix propensities compact hydrodynamic radii in intrinsically disordered proteins, *Proteins: Structure, Function and Bioinformatics*, 14, 659–664.
- Esmaeilpour, M., Ehsani, M.R., Aminlari, M., Shekarforoush, S., dan Hoseini, E., 2016, Antimicrobial activity of peptides derived from enzymatic hydrolysis of goat milk caseins, *Comparative Clinical Pathology*, 25 (3), 599–605.
- Espejo-Carpio, F.J., Pérez-Gálvez, R., Del Carmen Almécija, M., Guadix, A., dan Guadix, E.M., 2014, Production of goat milk protein hydrolysate enriched in ACE-inhibitory peptides by ultrafiltration, *Journal of Dairy Research*, 81 (4), 385–393.
- Espitia, P.J., De Fátima, N., Soares, F., Sélia, J., Coimbra, R., José De Andrade, N., Cruz, R.S., Antonio, E., dan Medeiros, A., 2012, Bioactive peptides: synthesis, properties, and applications in the packaging and preservation of food, *Comprehensive Reviews in Food Science and Food Safety*, 11, 187–204.
- Fan, J., Fu, A., dan Zhang, L., 2019, Progress in molecular penambatan, *Quantitative Biology*, 7 (2), 83–89.
- Farkas, A., Maróti, G., Kereszt, A., dan Kondorosi, É., 2017, Comparative analysis of the bacterial membrane disruption effect of two natural plant antimicrobial peptides, *Frontiers in Microbiology*, 8, 1–12.



- Fikrika, H., Ambarsari, L., dan Sumaryada, T., 2016, Molecular penambatan studies of catechin and its derivatives as anti-bacterial inhibitor for glucosamine-6-phosphate synthase, *Institue of Physics Conference Series: Earth and Environmental Science*, 31 (1).
- Flowers, L.O., Johnson, H.M., Mujtaba, M.G., Ellis, M.R., Haider, S.M.I., dan Subramaniam, P.S., 2004, Characterization of a peptide inhibitor of janus kinase 2 that mimics suppressor of cytokine signaling 1 function, *The Journal of Immunology*, 172 (12), 7510–7518.
- Fu, Y., Ji, C., Chen, X., Cui, X., Wang, X., Feng, J., Li, Y., Qin, R., dan Guo, X., 2017, Investigation into the antimicrobial action and mechanism of a novel endogenous peptide β -casein 197 from human milk, *AMB Express*, 7 (1), 1–9.
- Galande, S., Khaursade, P., Prakasham, R.S., dan Kishor, P.. K., 2018, In-silico development of efficient L-asparaginase enzyme for acute lymphoblastic leukaemia therapy, *International Journal of Pharmaceutical Sciences and Research*, 9 (10), 4177–4186.
- Ganesan, M.S., Raja, K.K., Narasimhan, K., Murugesan, S., dan Kumar, B.K., 2020, Design, synthesis, α -amylase inhibition and in silico penambatan study of novel quinoline bearing proline derivatives, *Journal of Molecular Structure*, 1208.
- Geerlings, A., Villar, I.C., Zarco, F.H., Sánchez, M., Vera, R., Gomez, A.Z., Boza, J., dan Duarte, J., 2006, Identification and characterization of novel angiotensin-converting enzyme inhibitors obtained from goat milk, *Journal of Dairy Science*, 89 (9), 3326–3335.
- Giangaspero, A., Sandri, L., dan Tossi, A., 2001, Amphipathic a helical antimicrobial peptides activity, *European Journal of Biochemistry*, 268, 5589–5600.
- Głowiak, E.D., Irimia-Vladu, M., Bauer, S., dan Sariciftci, N.S., 2013, Hydrogen-bonds in molecular solids-from biological systems to organic electronics, *Journal of Materials Chemistry B*, 1 (31), 3742–3753.
- Gong, H., Gao, J., Wang, Y., Luo, Q.W., Guo, K.R., Ren, F.Z., dan Mao, X.Y., 2020, Identification of novel peptides from goat milk casein that ameliorate high-glucose-induced insulin resistance in HepG2 cells, *Journal of Dairy Science*, 103 (6), 4907–4918.
- Graf, M.A., Wernli, H., dan Sprenger, M., 2017, Objective classification of extratropical cyclogenesis, *Quarterly Journal of the Royal Meteorological Society*, 143 (703), 1047–1061.
- Gu, L., Sun, C., Chen, L., Pang, S., Hussain, M.A., Jiang, C., Ma, J., Jiang, Z., dan Hou, J., 2020, Non-perfectly amphipathic α -helical structure containing the XXYXXX sequence improves the biological activity of bovine os2-casein antimicrobial peptides, *Journal of Agricultural and Food Chemistry*, 68 (28),



7520–7529.

- Guha, S., Sharma, H., Deshwal, G.K., dan Rao, P.S., 2021, A comprehensive review on bioactive peptides derived from milk and milk products of minor dairy species, *Food Production, Processing and Nutrition*, 3 (1), 1–21.
- Guzmán, F., Aróstica, M., Román, T., Beltrán, D., Gauna, A., Albericio, F., dan Cárdenas, C., 2023, Peptides ,solid-phase synthesis and characterization : tailor-made methodologies, *Electronic Journal of Biotechnology*, 64, 27–33.
- Hamasaki-Katagiri, N., Molchanova, T., Takeda, K., dan Ames, J.B., 2004, Fission yeast homolog of neuronal calcium sensor-1 (Ncs1p) regulates sporulation and confers calcium tolerance, *Journal of Biological Chemistry*, 279 (13), 12744–12754.
- Han, X., Aslanian, A., dan Yates, J.R., 2008, Mass spectrometry for proteomics, *Current Opinion in Chemical Biology*, 12 (5), 483–490.
- Han, Y., Zhao, J., Zhang, B., Shen, Q., Shang, Q., dan Li, P., 2019, Effect of a novel antifungal peptide P852 on cell morphology and membrane permeability of *Fusarium oxysporum*, *Biochimica et Biophysica Acta - Biomembranes*, 1861 (2), 532–539.
- Haslaniza, H., Maskat, M.Y., Wan Aida, W.M., dan Mamot, S., 2010, The effects of enzyme concentration, temperature and incubation time on nitrogen content and degree of hydrolysis of protein precipitate from cockle (*Anadara granosa*) meat wash water, *International Food Research Journal*, 17 (1), 147–152.
- Heissel, S., Frederiksen, S.J., Bunkenborg, J., dan Højrup, P., 2018, Enhanced trypsin on a budget: stabilization, purification and high-temperature application of inexpensive commercial trypsin for proteomics applications, *Public Library of Science ONE*, 14 (6), 1–16.
- Hermawan, F., Jumina, J., dan Pranowo, H.D., 2020, Design of thioxanthone derivatives as potential tyrosine kinase inhibitor: A molecular penambatan study, *Rasayan Journal of Chemistry*, 13 (4), 2626–2632.
- Hollingsworth, S.A. dan Dror, R.O., 2018, Molecular dynamics simulation for all, *Neuron*, 99 (6), 1129–1143.
- Hu, J., Chen, C., Zhang, S., Zhao, Xichen, Xu, H., Zhao, Xiubo, dan Lu, J., 2011, Designed antimicrobial and antitumor peptides with high selectivity, *Biomacromolecules*, 12, 3839–3843.
- Isaacson, T., Soto, A.M., Iwamuro, S., Knoop, F.C., dan Conlon, J.M., 2002, Antimicrobial peptides with atypical structural features from the skin of the Japanese brown frog *Rana japonica*, *Peptides*, 23 (3), 419–425.
- Issaq, H.J., Conrads, T.P., Janini, G.M., dan Veenstra, T.D., 2002, Methods for



- fractionation, separation and profiling of proteins and peptides, *Electrophoresis*, 23 (17), 3048–3061.
- Jakubczyk, A., 2018, Effect of addition of fermented bean seed flour on the content of bioactive components and nutraceutical potential of wheat wafers, *LWT - Food Science and Technology*, 98, 245–251.
- Jaramillo-Martinez, V., Urbatsch, I.L., dan Ganapathy, V., 2021, Functional Distinction between Human and Mouse Sodium-Coupled Citrate Transporters and Its Biologic Significance: An Attempt for Structural Basis Using a Homology Modeling Approach, *Chemical Reviews*, 121 (9), 5359–5377.
- Jean, K.D., Henderson, K.D., Chrom, C.L., Abiuso, L.E., Renn, L.M., dan Caputo, G.A., 2018, Effects of hydrophobic amino acid substitutions on antimicrobial peptide behavior, *Probiotics and Antimicrobial Proteins*, 10 (3), 408–419.
- Jeong, J.H., Kim, J.S., Choi, S.S., dan Kim, Y., 2016, NMR structural studies of antimicrobial peptides: LPcin analogs, *Biophysical Journal*, 110 (2), 423–430.
- Ji, S., An, F., Zhang, T., Lou, M., Guo, J., dan Liu, K., 2024, European Journal of Medicinal Chemistry Antimicrobial peptides : An alternative to traditional antibiotics, *European Journal of Medicinal Chemistry*, 265, 116072.
- Jin, X., Hu, X., Jiang, S., Zhao, T., Zha, Y., Wei, S., Zhao, J., Wang, M., dan Zhang, Y., 2023, Temporin-GHb-derived peptides exhibit potent antibacterial and antibiofilm activities against *Staphylococcus aureus* in vitro and protect mice from acute infectious pneumonia, *ACS Infectious Diseases*, 9 (4), 840–855.
- Khalil, Z.G., Salim, A.A., Lacey, E., Blumenthal, A., dan Capon, R.J., 2014, Wollamides: antimycobacterial cyclic hexapeptides from an australian soil Streptomyces, *Organic Letters*, 16 (19), 5120–5123.
- Khani, S., Seyedjavadi, S.S., Hosseini, H.M., Goudarzi, M., Valadbeigi, S., Khatami, S., Ajdary, S., Eslamifar, A., Amani, J., Imani Fooladi, A.A., dan Razzaghi-Abyaneh, M., 2020, Effects of the antifungal peptide Skh-AMP1 derived from *Satureja khuzistanica* on cell membrane permeability, ROS production, and cell morphology of conidia and hyphae of *Aspergillus fumigatus*, *Peptides*, 123, 170195.
- Khani, S., Seyedjavadi, S.S., Zare-Zardini, H., Hosseini, H.M., Goudarzi, M., Khatami, S., Amani, J., Imani Fooladi, A.A., dan Razzaghi-Abyaneh, M., 2019, Isolation and functional characterization of an antifungal hydrophilic peptide, Skh-AMP1, derived from *Satureja khuzistanica* leaves, *Phytochemistry*, 164, 136–143.
- Kim, Y.G., Kang, H.K., Kwon, K.D., Seo, C.H., Lee, H.B., dan Park, Y., 2015, Antagonistic Activities of Novel Peptides from *Bacillus amyloliquefaciens* PT14 against *Fusarium solani* and *Fusarium oxysporum*, *Journal of Agricultural and Food Chemistry*, 63 (48), 10380–10387.



- Klančnik, A., Piskernik, S., Jeršek, B., dan Možina, S.S., 2010, Evaluation of diffusion and dilution methods to determine the antibacterial activity of plant extracts, *Journal of Microbiological Methods*, 81 (2), 121–126.
- Konno, K., Hisada, M., Fontana, R., Lorenzi, C.C.B., Naoki, H., Itagaki, Y., Miwa, A., Kawai, N., Nakata, Y., Yasuhara, T., Ruggiero Neto, J., De Azevedo, W.F., Palma, M.S., dan Nakajima, T., 2001, Anoplin, a novel antimicrobial peptide from the venom of the solitary wasp *Anoplius samarensis*, *Biochimica et Biophysica Acta - Protein Structure and Molecular Enzymology*, 1550 (1), 70–80.
- Koukos, P.I., Roel-Touris, J., Ambrosetti, F., Geng, C., Schaarschmidt, J., Trellet, M.E., Melquiond, A.S.J., Xue, L.C., Honorato, R. V., Moreira, I., Kurkcuoglu, Z., Vangone, A., dan Bonvin, A.M.J.J., 2020, An overview of data-driven HADDOCK strategies in CAPRI rounds 38-45, *Proteins: Structure, Function and Bioinformatics*, 88 (8), 1029–1036.
- Kumar, A., Elavarasan, K., Hanjabam, M.D., Binsi, P.K., Mohan, C.O., Zynudheen, A.A., dan Kumar K, A., 2019, Marine collagen peptide as a fortificant for biscuit: effects on biscuit attributes, *LWT Food Sci. Technol.*, 109, 450–456.
- Kurkcuoglu, Z., Koukos, P.I., Citro, N., Trellet, M.E., Rodrigues, J.P.G.L.M., Moreira, I.S., Roel-Touris, J., Melquiond, A.S.J., Geng, C., Schaarschmidt, J., Xue, L.C., Vangone, A., dan Bonvin, A.M.J.J., 2018, Performance of HADDOCK and a simple contact-based protein-ligand binding affinity predictor in the D3R grand challenge 2, *Journal of Computer-Aided Molecular Design*, 32 (1), 175–185.
- Kusumaningtyas, E., 2018, Application of Peptide for Improving Animal Health and Livestock Productivity, *Wartazoa*, 28 (2), 89–98.
- Kusumaningtyas, E, Agustio, A., Gholib D, Kusumaningrum HD, dan Suhartono MT, 2015, Aktivitas antifungi peptida dari hidrolisat susu kambing terhadap *Candida albicans* dan *Trichophyton mentagrophytes*, *Prosiding Institut Pertanian Bogor*, 189–196.
- Kusumaningtyas, Eni, Raphaella, W., Harsi Dewantari, K., dan Maggy Thenawidjaja, S., 2015, Aktivitas Antibakteri Dan Antioksidan Hidrolisat Hasil Hidrolisis Protein Susu Kambing Dengan Ekstrak Kasar Bromelin, *Jurnal Teknologi dan Industri Pangan*, 26 (2), 179–188.
- Lai, Y., Villaruz, A.E., Li, M., Cha, D.J., Sturdevant, D.E., dan Otto, M., 2007, The human anionic antimicrobial peptide dermcidin induces proteolytic defence mechanisms in staphylococci, *Molecular Microbiology*, 63 (2), 497–506.
- Lamiable, A., Thevenet, P., Rey, J., Vavrusa, M., Derreumaux, P., dan Tuffery, P., 2016, PEP-FOLD3: faster denovo structure prediction for linear peptides in solution and in complex, *Nucleic Acids Research*, 44 (1), 449–454.
- Lee, M.R., Raman, N., Gellman, S.H., Lynn, D.M., dan Palecek, S.P., 2017,



Incorporation of β -amino acids enhances the antifungal activity and selectivity of the helical antimicrobial peptide aurein 1.2, *ACS Chemical Biology*, 12 (12), 2975–2980.

Lee, M.R., Raman, N., Ortiz-Bermúdez, P., Lynn, D.M., dan Palecek, S.P., 2019, 14-helical β -peptides elicit toxicity against *C. albicans* by forming pores in the Cell membrane and subsequently disrupting intracellular organelles, *Cell Chemical Biology*, 26 (2), 289–299.

Lei, J., Sun, L.C., Huang, S., Zhu, C., Li, P., He, J., Mackey, V., Coy, D.H., dan He, Q.Y., 2019, The antimicrobial peptides and their potential clinical applications, *American Journal of Translational Research*, 11 (7), 3919–3931.

Lensink, M.F., Nadzirin, N., Velankar, S., dan Wodak, S.J., 2020, Modeling protein-protein, protein-peptide, and protein-oligosaccharide complexes: CAPRI 7th edition, *Proteins: Structure, Function and Bioinformatics*, 88 (8), 916–938.

Li, J., Koh, J.J., Liu, S., Lakshminarayanan, R., Verma, C.S., dan Beuerman, R.W., 2017, Membrane active antimicrobial peptides: Translating mechanistic insights to design, *Frontiers in Neuroscience*, 11, 1–18.

Li, S., Hao, L., Bao, W., Zhang, P., Su, D., Cheng, Y., Nie, L., Wang, G., Hou, F., dan Yang, Y., 2016, A novel short anionic antibacterial peptide isolated from the skin of *Xenopus laevis* with broad antibacterial activity and inhibitory activity against breast cancer cell, *Archives of Microbiology*, 198 (5), 473–482.

Li, S., Wang, Y., Xue, Z., Jia, Y., Li, R., He, C., dan Chen, H., 2021, The structure-mechanism relationship and mode of actions of antimicrobial peptides: a review, *Trends in Food Science and Technology*, 109, 103–115.

Li, W., Tailhades, J., O'Brien-Simpson, N.M., Separovic, F., Otvos, L., Hossain, M.A., dan Wade, J.D., 2014, Proline-rich antimicrobial peptides: Potential therapeutics against antibiotic-resistant bacteria, *Amino Acids*, 46 (10), 2287–2294.

Li, Y., Tang, X., Yang, Z., He, J., Ma, N., Huang, A., dan Shi, Y., 2023, BCp12/PLA combination: A novel antibacterial agent targeting Mur family, DNA gyrase and DHFR, *International Journal of Food Microbiology*, 406, 126493.

Lin, B., Hung, A., Singleton, W., Darmawan, K.K., Moses, R., Yao, B., Wu, H., Barlow, A., Sani, M.A., Sloan, A.J., Hossain, M.A., Wade, J.D., Hong, Y., O'Brien-Simpson, N.M., dan Li, W., 2023, The effect of tailing lipidation on the bioactivity of antimicrobial peptides and their aggregation tendency: special issue: emerging investigators, *Aggregate*, 4 (4), 1–15.

Lin, L., Lin, H., Zhang, M., Dong, X., Yin, X., Qu, C., and Ni, J., 2015, Types, Principle, and Characteristics of Tandem High-Resolution Mass Spectrometry and its Applications, *RSC Advances.*, 5 (130), 1-26.

Lorenzón, E.N., Nobre, T.M., Caseli, L., Cilli, E.M., da Hora, G.C.A., Soares, T.A.,



- dan Oliveira, O.N., 2018, The “pre-assembled state” of magainin 2 lysine-linked dimer determines its enhanced antimicrobial activity, *Colloids and Surfaces B: Biointerfaces*, 167, 432–440.
- Lum, K.Y., Tay, S.T., Le, C.F., Lee, V.S., Sabri, N.H., Velayuthan, R.D., Hassan, H., dan Sekaran, S.D., 2015, Activity of novel synthetic peptides against *Candida albicans*, *Scientific Reports*, 5, 1–12.
- Luz, C., Izzo, L., Ritieni, A., Mañes, J., dan Meca, G., 2020, Antifungal and antimycotoxicogenic activity of hydrolyzed goat whey on *Penicillium* spp: An application as biopreservation agent in pita bread, *LWT Food Science and Technology*, 118, 108717.
- Makarewicz, T. dan Kaźmierkiewicz, R., 2013, Molecular dynamics simulation by GROMACS using GUI plugin for PyMOL, *Journal of Chemical Information and Modeling*, 53 (5), 1229–1234.
- Malanovic, N. dan Lohner, K., 2016, Gram-positive bacterial cell envelopes: the impact on the activity of antimicrobial peptides, *Biochimica et Biophysica Acta - Biomembranes*, 1858 (5), 936–946.
- Manadas, B., Mendes, V.M., English, J., dan Dunn, M.J., 2010, Peptide fractionation in proteomics approaches, *Expert Review of Proteomics*, 7 (5), 655–663.
- Martinez-Gonzalez, A.I., Díaz-Sánchez, G., de la Rosa, L.A., Bustos-Jaimes, I., dan Alvarez-Parrilla, E., 2019, Inhibition of α -amylase by flavonoids: Structure activity relationship (SAR), *Spectrochimica Acta - Part A : Molecular and Biomolecular Spectroscopy*, 206, 437–447.
- Miao, J., Zhou, J., Liu, G., Chen, F., Chen, Y., Gao, X., Dixon, W., Song, M., Xiao, H., dan Cao, Y., 2016, Membrane disruption and DNA binding of *Staphylococcus aureus* cell induced by a novel antimicrobial peptide produced by *Lactobacillus paracasei* subsp. tolerans FX-6, *Food Control*, 59, 609–613.
- Michalski, A., Damoc, E., Hauschild, J.P., Lange, O., Wieghaus, A., Makarov, A., Nagaraj, N., Cox, J., Mann, M., dan Horning, S., 2011, Mass spectrometry-based proteomics using Q exactive, a high-performance benchtop quadrupole orbitrap mass spectrometer, *Molecular and Cellular Proteomics*, 10 (9), 1–12.
- Migoń, D., Jaśkiewicz, M., Neubauer, D., Bauer, M., Sikorska, E., Kamysz, E., dan Kamysz, W., 2019, Alanine Scanning Studies of the Antimicrobial Peptide Aurein 1.2, *Probiotics and Antimicrobial Proteins*, 11 (3), 1042–1054.
- Minervini, F., Algaron, F., Rizzello, C.G., Fox, P.F., Monnet, V., dan Gobbetti, M., 2003, Angiotensin I-converting-enzyme-inhibitory and antibacterial peptides from *Lactobacillus helveticus* PR4 proteinase-hydrolyzed caseins of milk from six species, *Applied and Environmental Microbiology*, 69 (9), 5297–5305.
- Modugno, C., Loupiac, C., Bernard, A., Jossier, A., Neiers, F., Perrier-Cornet, J.M.,



- dan Simonin, H., 2018, Effect of high pressure on the antimicrobial activity and secondary structure of the bacteriocin nisin, *Innovative Food Science and Emerging Technologies*, 47, 9–15.
- Mohamed, M.F., Abdelkhalek, A., dan Seleem, M.N., 2016, Evaluation of short synthetic antimicrobial peptides for treatment of drug-resistant and intracellular *Staphylococcus aureus*, *Scientific Reports*, 6, 29707.
- Mohanty, D., Jena, R., Choudhury, P.K., Pattnaik, R., Mohapatra, S., dan Saini, M.R., 2016, Milk derived antimicrobial bioactive peptides: a review, *International Journal of Food Properties*, 19 (4), 837–846.
- Morais, F.S., Canuto, K.M., Ribeiro, P.R.V., Silva, A.B., Pessoa, O.D.L., Freitas, C.D.T., Alencar, N.M.N., Oliveira, A.C., dan Ramos, M. V., 2020, Chemical profiling of secondary metabolites from *Himatanthus drasticus* (Mart.) Plumel latex with inhibitory action against the enzymes α -amylase and α -glucosidase: In vitro and in silico assays, *Journal of Ethnopharmacology*, 253, 112644.
- Moravej, H., Moravej, Z., Yazdanparast, M., Heiat, M., Mirhosseini, A., Moosazadeh Moghaddam, M., dan Mirnejad, R., 2018, Antimicrobial peptides: features, action, and their resistance mechanisms in bacteria, *Microbial Drug Resistance*, 24 (6), 747–767.
- Moslehishad, M., Ehsani, M.R., Salami, M., Mirdamadi, S., Ezzatpanah, H., Naslaji, A.N., dan Moosavi-Movahedi, A.A., 2013, The comparative assessment of ACE-inhibitory and antioxidant activities of peptide fractions obtained from fermented camel and bovine milk by *Lactobacillus rhamnosus* PTCC 1637, *International Dairy Journal*, 29 (2), 82–87.
- Mukherjee, S., Kar, R.K., Nanga, R.P.R., Mroue, K.H., Ramamoorthy, A., dan Bhunia, A., 2017, Accelerated molecular dynamics simulation analysis of MSI-594 in a lipid bilayer, *Physical Chemistry Chemical Physics*, 19 (29), 19289–19299.
- Murzyn, K., Rög, T., dan Pasenkiewicz-Gierula, M., 2005, Phosphatidylethanolamine-phosphatidylglycerol bilayer as a model of the inner bacterial membrane, *Biophysical Journal*, 88 (2), 1091–1103.
- Nagy, G., Igaev, M., Jones, N.C., Hoffmann, S. V., dan Grubmüller, H., 2019, Sesca: predicting circular dichroism spectra from protein molecular structures, *Journal of Chemical Theory and Computation*, 15 (9), 5087–5102.
- Najjari, A., Rahimi, H., Nojoumi, S.A., dan Omidinia, E., 2020, Computational approach for rational design of fusion uricase with PAS sequences, *International Journal of Molecular and Cellular Medicine*, 9 (1), 90–106.
- Nardo, A.E., Añón, M.C., dan Quiroga, A. V., 2020, Identification of renin inhibitors peptides from amaranth proteins by penambatan protocols, *Journal of Functional Foods*, 64, 103683.



- Neelabh, Singh, K., dan Rani, J., 2016, Sequential and structural aspects of antifungal peptides from animals, bacteria and fungi based on bioinformatics tools, *Probiotics and Antimicrobial Proteins*, 8 (2), 85–101.
- Nguyen, H.T.H., Gathercole, J.L., Day, L., dan Dalziel, J.E., 2020, Differences in peptide generation following in vitro gastrointestinal digestion of yogurt and milk from cow, sheep and goat, *Food Chemistry*, 317, 126419.
- Niles, A.L., Moravec, R.A., Eric Hesselberth, P., Scurria, M.A., Daily, W.J., dan Riss, T.L., 2007, A homogeneous assay to measure live and dead cells in the same sample by detecting different protease markers, *Analytical Biochemistry*, 366 (2), 197–206.
- Oba, M., Nakajima, S., Misao, K., Yokoo, H., dan Tanaka, M., 2023, Effect of helicity and hydrophobicity on cell-penetrating ability of arginine-rich peptides, *Bioorganic and Medicinal Chemistry*, 91, 117409.
- Oduselu, G.O., Ajani, O.O., Ajamma, Y.U., Brors, B., dan Adebiyi, E., 2019, Homology modelling and molecular penambatan studies of selected substituted benzo[d]imidazol-1-yl)methyl)benzimidamide Scaffolds on *Plasmodium falciparum* adenylosuccinate lyase receptor, *Bioinformatics and Biology Insights*, 13, 1–10.
- Okella, H., Georrge, J.J., Ochwo, S., Ndekezi, C., Koffi, K.T., Aber, J., Ajayi, C.O., Fofana, F.G., Ikiriza, H., Mtewa, A.G., Nkamwesiga, J., Bassogog, C.B.B., Kato, C.D., dan Ogwang, P.E., 2020, New putative antimicrobial candidates: in silico design of fish-derived antibacterial peptide-motifs, *Frontiers in Bioengineering and Biotechnology*, 8, 1–10.
- Otvos, L., 2000, Antibacterial peptides isolated from insects, *Journal of Peptide Science*, 6 (10), 497–511.
- Parathon, H., Kuntaman, K., Widiastoety, T.H., Muliawan, B.T., Karuniawati, A., Qibtiyah, M., Djanun, Z., Tawilah, J.F., Aditama, T., Thamlikitkul, V., dan Vong, S., 2017, Progress towards antimicrobial resistance containment and control in Indonesia, *British Medical Journal*, 358, 31–35.
- Parducho, K.R., Beadell, B., Ybarra, T.K., Bush, M., Escalera, E., Trejos, A.T., Chieng, A., Mendez, M., Anderson, C., Park, H., Wang, Y., Lu, W., dan Porter, E., 2020, The antimicrobial peptide human beta-defensin 2 inhibits biofilm production of *Pseudomonas aeruginosa* without compromising metabolic activity, *Frontiers in Immunology*, 11, 1–16.
- Putri, R.A., Rohman, M.S., Swasono, R.T., dan Raharjo, T.J., 2023, A novel synthetic peptide analog enhanced antibacterial activity of the frog-derived skin peptide wuchuanin-A1, *Journal of Biomolecular Structure and Dynamics*, 1–11.
- Qiao, J., Kontoyiannis, D.P., Wan, Z., Li, R., dan Liu, W., 2007, Antifungal activity of



- statins against *Aspergillus* species, *Medical Mycology*, 45 (7), 589–593.
- Raharjo, T.J., Utami, W.M., Fajr, A., Haryadi, W., dan Swasono, R.T., 2021, Antibacterial peptides from tryptic hydrolysate of *Ricinus communis* seed protein fractionated using cation exchange chromatography, *Indonesian Journal of Pharmacy*, 32 (1), 74–85.
- Raheem, N. dan Straus, S.K., 2019, Mechanisms of action for antimicrobial peptides with antibacterial and antibiofilm functions, *Frontiers in Microbiology*, 10, 1–14.
- Rahmatia, T.U., 2016, Metode SPE sebagai alternatif terbaru dalam analisis dan pemurnian senyawa obat, *Farmaka*, 14 (2), 151–170.
- Rai, M., Pandit, R., Gaikwad, S., dan Kövics, G., 2016, Antimicrobial peptides as natural bio-preservative to enhance the shelf-life of food, *Journal of Food Science Technology*, 53 (9), 3381–3394.
- Raj, P., Edgerton, M., dan Levine, M., 1990, Salivary histatin 5 : dependence of sequence , chain helical conformation for candidacidal activity, *The Journal of Biological Chemistry*, 265 (7), 3898–3905.
- Rajawat, J. dan Jhingan, G., 2019, Mass spectroscopy,. In, *Data processing handbook for complex biological data sources*. Academic Press, Massachussets, 1–20.
- Ramamourthy, G., Park, J., Seo, C., dan Vogel, H.J., 2020, Antifungal and antibiofilm activities and the mechanism of action of repeating lysine-tryptophan peptides against *Candida albicans*, *Microorganisms*, 8 (758), 1–22.
- Rao, J., Reena, G., dan Subramanyam, C., 1997, Calmodulin-dependent protein phosphorylation during conidial germination and growth of *Neurospora crassa*, *Mycological Research*, 101 (12), 1484–1488.
- Rautenbach, M., Troskie, A.M., dan Vosloo, J.A., 2016, Biochimie Antifungal peptides : To be or not to be membrane active, *Biochimie*, 130, 132–145.
- Reed, J.D., Edwards, D.L., dan Gonzalez, C.F., 1997, Synthetic peptide combinatorial libraries : a method for the identification of bioactive peptides against phytopathogenic fungi, *Molecular Plant Microbe Interactions*, 10 (5), 537–549.
- Rued, B.E., Covington, B.C., Bushin, L.B., Szewczyk, G., Laczkovich, I., Seyedsayamdst, M.R., dan Federle, M.J., 2021, Erratum: quorum sensing in *Streptococcus mutans* regulates production of tryglysin, a novel RaS-RiPP antimicrobial compound, *mBio*, 12 (2).
- Sah, B.N.P., Vasiljevic, T., McKechnie, S., dan Donkor, O.N., 2016, Antibacterial and antiproliferative peptides in symbiotic yogurt-Release and stability during refrigerated storage, *Journal of Dairy Science*, 99 (6), 4233–4242.
- Salas, L.M., Mounier, J., Valence, F., Coton, M., Thierry, A., dan Coton, E., 2017, Antifungal microbial agents for food biopreservation—a review,



Microorganisms, 5 (3), 1–35.

- Salo-Ahen, O.M.H., Alanko, I., R.Bhadane, Bovine, A.M.J.J., Honorato, R., Hossain, S., Juffer, A.H., Kabedev, A., M. Lahtela-Kakkonen, Anders S.L., E.L., Marimuthu, P., Mirza, M., Mustafa, G., Nunes-Alves, A., T.Pantsar, S.Atefeh, Vanmeert, M., dan Singaravelu, K., 2020, Molecular dynamics simulations in drug discovery and drug delivery, *Engineering Materials*, 9 (71), 275–301.
- Samapundo, S., Devlieghere, F., Vroman, A., dan Eeckhout, M., 2017, Antifungal activity of fermentates and their potential to replace propionate in bread, *LWT - Food Science and Technology*, 76, 101–107.
- Sari, M., Suryanto, D., dan Yurnaliza, 2018, Antimicrobial activity of lactic acid bacteria isolated from bekasam against *Staphylococcus aureus* ATCC 25923, *escherichia coli* ATCC 25922, and *salmonella* sp, *Institute of Physics Conference Series: Earth and Environmental Science*, 130 (1).
- Sass, V., Schneider, T., Wilmes, M., Körner, C., Tossi, A., Novikova, N., Shamova, O., dan Sahl, H.G., 2010, Human β -defensin 3 inhibits cell wall biosynthesis in staphylococci, *Infection and Immunity*, 78 (6), 2793–2800.
- Saviano, A.M. dan Lourenço, F.R., 2019, Using image analysis to determine gentamicin potency by agar diffusion microbiological assay and its measurement uncertainty, *Measurement: Journal of the International Measurement Confederation*, 146, 315–321.
- Shah, T.K., Tandel, R.S., Kumar, A., Bhat, R.A.H., Dash, P., dan Sarma, D., 2021, Chemical composition, antifungal activity and molecular penambatan of Himalayan thyme leaf extract (*Thymus linearis*) against fish pathogenic oomycete *Saprolegnia parasitica*, *Aquaculture*, 543, 736988.
- Sharma, S. dan Singh, R.K., 2022, Effect of atmospheric pressure cold plasma treatment time and composition of feed gas on properties of skim milk, *LWT - Food Science and Technology*, 154, 112747.
- Shi, Y., Li, Y., Yang, K., Wei, G., dan Huang, A., 2023, A novel milk-derived peptide effectively inhibits *Staphylococcus aureus*: Interferes with cell wall synthesis, peptidoglycan biosynthesis disruption reaction mechanism , and its application in real milk system, *Food Control*, 144, 109374.
- Shi, Y., Li, Y., Yang, K., Wei, G., dan Huang, A., 2022, Antimicrobial peptide BCp12 inhibits *Staphylococcus aureus* growth by altering lysine malonylation levels in the arginine synthesis pathway, *Journal of Agricultural and Food Chemistry*, 70 (1), 403–414.
- Shwaiki, L.N., Lynch, K.M., dan Arendt, E.K., 2021, Future of antimicrobial peptides derived from plants in food application – a focus on synthetic peptides, *Trends Food Science &Technology*, 112, 312–324.



- Silva, P.C. da, Toledo, T., Brião, V., Bertolin, T.E., dan Costa, J.A.V., 2021, Development of extruded snacks enriched by bioactive peptides from microalga *Spirulina* sp. LEB 18, *Food Bioscience*, 42, 1–8.
- Singh, A., Duche, R.T., Wandhare, A.G., Sian, J.K., Singh, B.P., Sihag, M.K., Singh, K.S., Sangwan, V., Talan, S., dan Panwar, H., 2023, Milk-derived antimicrobial peptides: overview, applications, and future perspectives, *Probiotics and Antimicrobial Proteins*, 15 (1), 44–62.
- Singh, U., Singh, P., Singh, A.K., Laxmi, Kumar, D., Tilak, R., Shrivastava, S.K., dan Asthana, R.K., 2021, Identification of antifungal and antibacterial biomolecules from a cyanobacterium, *Arthrospira platensis*, *Algal Research*, 54, 102215.
- Sliwoski, G.R., Meiler, J., dan Lowe, E.W., 2014, Computational methods in drug discovery prediction of protein structure and ensembles from limited experimental data view project antibody modeling, antibody design and antigen-antibody interactions view project, *Computational Methods in Drug Discovery*, 66 (1), 334–95.
- Smirnova, M.P., Kolodkin, N.I., Kolobov, A.A., Afonin, V.G., dan Afonina, I. V, 2020, Peptides indolicidin analogs with broad-spectrum antimicrobial activity and low hemolytic activity, *Peptides*, 132, 170356.
- Sornwatana, T., Roytrakul, S., Wetprasit, N., dan Ratanapo, S., 2013, Brucin, an antibacterial peptide derived from fruit protein of fructus bruceae, *Brucea javanica* (L.) Merr, *Letters in Applied Microbiology*, 57 (2), 129–136.
- Spoel, V.D., Lindahl, E., Hess, B., Groenhof, G., Mark, A.E., dan Berendsen, H.J.C., 2005, GROMACS: Fast, flexible, and free, *Journal of Computational Chemistry*, 26 (16), 1701–1718.
- Sprague-Piercy, M.A., Bierma, J.C., Crosby, M.G., Carpenter, B.P., Takahashi, G.R., Paulino, J., Hung, I., Zhang, R., Kelly, J.E., Kozlyuk, N., Chen, X., Butts, C.T., dan Martin, R.W., 2020, The droserasin 1 PSI: A membrane-interacting antimicrobial peptide from the carnivorous plant *Drosera capensis*, *Biomolecules*, 10 (7), 1–20.
- Sulastina, N.A., 2020, Analisis jamur kontaminan pada roti tawar yang dijual di pasar tradisional, *Jurnal Aisyiyah Medika*, 5 (1), 122–130.
- Sunhwan, J., Taehoon, K., Vidyashankara, G.I., dan Wonpil, I., 2008, CHARMM-GUI A web-based graphical user interface for CHARMM, *Journal of Computational Chemistry*, 29 (11), 1859–1865.
- Szwajkowska, M., Wolanciuk, A., Barlowska, J., Król, J., dan Litwińczuk, Z., 2011, Bovine milk proteins as the source of bioactive peptides influencing the consumers' immune system-a review, *Animal Science Papers and Reports*, 29 (4), 269–280.



- Taghipour, M.J., Ezzatpanah, H., dan Ghahderijani, M., 2023, In vitro and in silico studies for the identification of anti-cancer and antibacterial peptides from camel milk protein hydrolysates, *Public Library of Science ONE*, 18, 1–15.
- Tancer, R.J., Wang, Y., Pawar, S., Xue, C., dan Wiedman, G.R., 2022, Development of antifungal peptides against *Cryptococcus neoformans*; leveraging knowledge about the cdc50Δ mutant susceptibility for lead compound development, *Microbiology Spectrum*, 10 (2), 1–15.
- Taniguchi, M., Ochiai, A., Kondo, H., Fukuda, S., Ishiyama, Y., Saitoh, E., Kato, T., dan Tanaka, T., 2016, Pyrrhocoricin , a proline-rich antimicrobial peptide derived from insect , inhibits the translation process in the cell-free *Escherichia coli* protein synthesis system, *Journal of Bioscience and Bioengineering*, 121 (5), 591–598.
- Taniwaki, M.H., Hocking, A.D., Pitt, J.I., dan Fleet, G.H., 2009, Growth and mycotoxin production by food spoilage fungi under high carbon dioxide and low oxygen atmospheres, *International Journal of Food Microbiology*, 132 (2–3), 100–108.
- Tareq, F.S., Lee, M.A., Lee, H.S., Lee, J.S., Lee, Y.J., dan Shin, H.J., 2014, Gageostatins A-C, antimicrobial linear lipopeptides from a marine *Bacillus subtilis*, *Marine Drugs*, 12 (2), 871–885.
- Tomi, I.H.R., Al-Daraji, A.H.R., Abdula, A.M., dan Al-Marjani, M.F., 2016, Synthesis, antimicrobial and penambatan study of three novel 2,4,5-triarylimidazole derivatives, *Journal of Saudi Chemical Society*, 20, S509–S516.
- Tu, M., Wang, C., Chen, C., Zhang, R., Liu, H., Lu, W., Jiang, L., dan Du, M., 2018, Identification of a novel ACE-inhibitory peptide from casein and evaluation of the inhibitory mechanisms, *Food Chemistry*, 256, 98–104.
- Ulmschneider, J.P. dan Ulmschneider, M.B., 2018, Molecular dynamics simulations are redefining our view of peptides interacting with biological membranes, *Accounts of Chemical Research*, 51 (5), 1106–1116.
- Upendra, R.S., Khandelwal, P., Jana, K., Ajay Kumar, N., Gayathri Devi, M., dan Stephaney, M.L., 2016, Bacteriocin production from indigenous strains of lactic acid bacteria isolated from selected fermented food sources, *International Journal of Pharma Research and Health Sciences*, 4 (1), 982–990.
- Vandermarliere, E., Mueller, M., dan Martens, L., 2013, Getting intimate with trypsin, the leading protease in proteomics, *Mass Spectrometry Reviews*, 32, 453–465.
- Vangone, A. dan Bonvin, A.M.J., 2017, PRODIGY: a contact-based predictor of binding affinity in protein-protein complexes, *Bio protocol*, 7 (03), 1–7.
- Verma, M., Dige, M.S., Gautam, D., De, S., dan Rout, P.K., 2020, Functional milk proteome analysis of genetically diverse goats from different agro climatic



- regions, *Journal of Proteomics*, 227, 103916.
- Wang, H., Xu, J., Liu, Q., Xia, X., Sun, F., dan Kong, B., 2022, Effect of the protease from *Staphylococcus carnosus* on the proteolysis, quality characteristics, and flavor development of Harbin dry sausage, *Meat Science*, 189, 108827.
- Wang, K., Dang, W., Yan, J., Chen, R., Liu, X., Yan, W., Zhang, B., Xie, J., Zhang, J., dan Wang, R., 2013, Membrane perturbation action mode and structure-activity relationships of protonectin, a novel antimicrobial peptide from the venom of the neotropical social wasp Agelaia pallipes pallipes, *Antimicrobial Agents and Chemotherapy*, 57 (10), 4632–4639.
- Wang, S., Zeng, X., Yang, Q., dan Qiao, S., 2016, Antimicrobial peptides as potential alternatives to antibiotics in food animal industry, *International Journal of Molecular Sciences*, 17 (5), 1–12.
- Wang, Shujun, Yu, J., Xin, Q., Wang, Shuo, dan Copeland, L., 2017, Effects of starch damage and yeast fermentation on acrylamide formation in bread, *Food Control*, 73, 230–236.
- Wanniatie, V., A.Qisthon, Husni, A., dan Olsen, E., 2021, Kualitas mikrobiologis susu kambing dengan metode pasteurisasi high temperature short time (HTST) pada penyimpanan berbeda microbiological, *Jurnal Ilmu Produksi dan Teknologi Hasil Peternakan*, 09 (30), 35.
- Wargasetia, T.L., Ratnawati, H., Widodo, N., dan Widyananda, M.H., 2021, Bioinformatics study of sea cucumber peptides as antibreast cancer through inhibiting the activity of overexpressed protein (EGFR, PI3K, AKT1, and CDK4), *Cancer Informatics*, 20, 1–11.
- Waterhouse, A., Bertoni, M., Bienert, S., Studer, G., Tauriello, G., Gumienny, R., Heer, F.T., De Beer, T.A.P., Rempfer, C., Bordoli, L., Lepore, R., dan Schwede, T., 2018, SWISS-MODEL: homology modelling of protein structures and complexes, *Nucleic Acids Research*, 46, 296–303.
- Wei, Y., Thyparambil, A.A., dan Latour, R.A., 2014, Protein helical structure determination using CD spectroscopy for solutions with strong background absorbance from 190 to 230 nm, *Biochimica et Biophysica Acta - Proteins and Proteomics*, 1844 (12), 2331–2337.
- Wenzel, M., Schriek, P., Prochnow, P., Albada, H.B., Metzler-Nolte, N., dan Bandow, J.E., 2016, Influence of lipidation on the mode of action of a small RW-rich antimicrobial peptide, *Biochimica et Biophysica Acta - Biomembranes*, 1858 (5), 1004–1011.
- Widodo, H.S., Astuti, T.Y., Soediarto, P., dan Syamsi, A.N., 2021, Identification of Widodo, H.S., Astuti, T.Y., Soediarto, P., dan Syamsi, A.N., 2021, Identification of goats' and cows' milk protein profile in Banyumas regency by sodium dedocyl



- sulphate gel electrophoresis (SDS-PAGE), *Animal Production*, 23 (32), 27–33.
- Won, T., Abdul, S., Choi, J., Kim, M., Krishnamoorthy, J., Biswas, I., Bhunia, A., dan Lee, D., 2023, Biophysical chemistry the role of hydrophobic patches of de novo designed MSI-78 and VG16KRKP antimicrobial peptides on fragmenting model bilayer membranes, *Biophysical Chemistry*, 296, 106981.
- Wu, X., Wang, Z., Li, X., Fan, Y., He, G., Wan, Y., Yu, C., Tang, J., Li, M., Zhang, X., Zhang, H., Xiang, R., Pan, Y., Liu, Y., Lu, L., dan Yang, L., 2014, In vitro and in vivo activities of antimicrobial peptides developed using an amino acid-based activity prediction method, *Antimicrobial Agents and Chemotherapy*, 58 (9), 5342–5349.
- Xiao, J., Zhang, H., Niu, L., dan Wang, X., 2011, Efficient screening of a novel antimicrobial peptide from *Jatropha curcas* by cell membrane affinity chromatography, *Journal of Agricultural and Food Chemistry*, 59 (4), 1145–1151.
- Xue, L.C., Rodrigues, J.P., Kastritis, P.L., Bonvin, A.M., dan Vangone, A., 2016, PRODIGY: a web server for predicting the binding affinity of protein-protein complexes, *Bioinformatics*, 32 (23), 3676–3678.
- Yang, F., Jiang, W., Chen, X., Wu, J., Huang, J., Cai, X., dan Wang, S., 2023, Investigation on the quality regulating mechanism of antifreeze peptides on frozen surimi: From macro to micro, *Food Research International*, 163, 112299.
- Yang, H., Xue, Y., Liu, J., Song, S., Zhang, L., Song, Q., Tian, L., He, X., He, S., dan Zhu, H., 2019, Hydrolysis Process Optimization and Functional Characterization of Yak Skin Gelatin Hydrolysates, *Journal of Chemistry*, 2019 (3), 1–11.
- Yang, K., Shi, Y., Li, Y., Wei, G., Zhao, Q., dan Huang, A., 2022, iTRAQ-based quantitative proteomic analysis of antibacterial mechanism of milk-derived peptide BCp12 against *Escherichia coli*, *Foods*, 11 (5), 672.
- Yang, S., Yuan, Z., Aweya, J.J., Huang, S., Deng, S., Shi, L., Zheng, M., Zhang, Y., dan Liu, G., 2021, Low-intensity ultrasound enhances the antimicrobial activity of neutral peptide TGH2 against *Escherichia coli*, *Ultrasonics Sonochemistry*, 77, 105676.
- Yang, Y. dan Dias, C.L., 2023, Peptide-membrane binding: effects of the amino acid sequence, *Journal of Physical Chemistry B*, 127 (4), 912–920.
- Yasrebi, S.A., Takjoo, R., dan Riazi, G.H., 2019, HSA-interaction studies of uranyl complexes of alkyl substituted isothiosemicarbazone, *Journal of Molecular Structure*, 1193, 53–61.
- Yin, X., Gao, M., Wang, H., Chen, Q., dan Kong, B., 2022, Probing the interaction between selected furan derivatives and porcine myofibrillar proteins by spectroscopic and molecular penambatan approaches, *Food Chemistry*, 397, 133776.



- Yu, Y., Reid, P., Hinrichs, S.H., Yu, Y., Cooper, C.L., Wang, G., Morwitzer, M.J., Kota, K., Tran, J.P., Bradfute, S.B., Liu, Y., Shao, J., Zhang, A.K., Luo, L.G., dan Reid, S.P., 2020, Iscience engineered human cathelicidin antimicrobial Ebola virus infection, *Iscience*, 23 (4), 100999.
- Zanutto-Elgui, M.R., Vieira, J.C.S., Prado, D.Z. do, Buzalaf, M.A.R., Padilha, P. de M., Elgui de Oliveira, D., dan Fleuri, L.F., 2019, Production of milk peptides with antimicrobial and antioxidant properties through fungal proteases, *Food Chemistry*, 278, 823–831.
- Zhang, J., Li, F., Shen, S., Yang, Z., Ji, X., Wang, X., Liao, X., dan Zhang, Y., 2023, More simple, efficient and accurate food research promoted by intermolecular interaction approaches: A review, *Food Chemistry*, 416, 135726.
- Zhang, K., Zhang, H., Gao, C., Chen, R., dan Li, C., 2020, Antimicrobial mechanism of pBD2 against *Staphylococcus aureus*, *Molecules*, 25, 1–17.
- Zhang, R., Wang, Z., Tian, Y., Yin, Q., Cheng, X., dan Lian, M., 2019, Efficacy of antimicrobial peptide DP7, designed by machine-learning method , against methicillin-resistant *Staphylococcus aureus*, *Frontiers in Microbiology*, 10, 1–13.
- Zhang, Y., Chen, R., Ma, H., dan Chen, S., 2015, Isolation and Identification of Dipeptidyl Peptidase IV-Inhibitory Peptides from Trypsin/Chymotrypsin-Treated Goat Milk Casein Hydrolysates by 2D-TLC and LC-MS/MS, *Journal of Agricultural and Food Chemistry*, 63 (40), 8819–8828.
- Zhang, Y., Fonslow, B.R., Shan, B., Baek, M.C., dan Yates, J.R., 2013, Protein analysis by shotgun/bottom-up proteomics, *Chemical Reviews*, 113 (4), 2343–2394.
- Zhao, P., Xue, Y., Gao, W., Li, J., Zu, X., Fu, D., Feng, S., Bai, X., Zuo, Y., dan Li, P., 2018, Actinobacteria-derived peptide antibiotics since 2000, *Peptides*, 103, 48–59.
- Zhao, Q., Shi, Y., Wang, X., dan Huang, A., 2020, Characterization of a novel antimicrobial peptide from buffalo casein hydrolysate based on live bacteria adsorption, *Journal of Dairy Science*, 103 (12), 11116–11128.
- Zhou, P., Jin, B., Li, H., dan Huang, S.Y., 2018, HPEPDOCK: a web server for blind peptide-protein penambatan based on a hierarchical algorithm, *Nucleic Acids Research*, 46, 443–450.
- Zhu, X., Dong, N., Wang, Z., Ma, Z., Zhang, L., Ma, Q., dan Shan, A., 2014, Design of imperfectly amphipathic α -helical antimicrobial peptides with enhanced cell selectivity, *Acta Biomaterialia*, 10 (1), 244–257.
- Zundert, G.C.P. Van, Rodrigues, J.P.G.L.M., Trellet, M., dan Schmitz, C., 2016, The HADDOCK2.2 web server : user-friendly integrative modeling of biomolecular complexes, *Journal of Molecular Biology*, 428 (4), 720–725.