

## DAFTAR PUSTAKA

- Abidin, Z. Z., & Hassan, S. R. (2023). A Review of Factors Affecting Enzymatic Hydrolysis of Food Waste. *Journal of Wastes and Biomass Management*, 5(2), 47-48. <https://doi.org/10.26480/jwbm.02.2023.47.48>
- Association of Official Analytical Chemists [AOAC]. 1995. Official Methods of Analysis of The Association Official Analytical Chemist. Arlington Virginia USA: Published by The Association of Official Analytical Chemists, Inc.
- Aziz, F., Utami, T., Suroto, D. A., Yanti, R., & Sutriswati Rahayu, E. (2023). Fermentation of Pineapple Juice with *Lactiplantibacillus plantarum* subsp. *Plantarum* dad-13: Sensory and Microbiological Characteristics. *Czech Journal of Food Sciences*, 41(3), 221-229. <https://doi.org/10.17221/243/2022-cjfs>
- Badan Pusat Statistik Kota Surakarta. (26 November 2024). *Harga Eceran Beberapa Bahan Pokok di Kota Surakarta Oktober 2024*. Diakses pada 26 Maret 2025, dari <https://surakartakota.bps.go.id/id/publication/2024/11/26/a380a4ad7a7687a349c62f0c/harga-eceran-beberapa-bahan-pokok-di-kota-surakarta-oktober-2024.html>.
- [BSN] Badan Standarisasi Nasional. 1992. SNI 01-2891-1992. Cara Uji Makanan dan Minuman. Badan Standarisasi Nasional : Jakarta.
- Chang, M. *et al.* (2014) ‘Effect of Defatting on Quality of Meat and Bone Meal’, *Animal Science Journal*, 86(3), pp. 319–324. doi:10.1111/asj.12286.
- Cheison, S. C., & Kulozik, U. (2015). Impact of The Environmental Conditions and Substrate Pre-Treatment on Whey Protein Hydrolysis: A review. *Critical Reviews in Food Science and Nutrition*, 57(2), 418-453. <https://doi.org/10.1080/10408398.2014.959115>
- Choi, B. D., Wong, A. K., & Auh, J. H. (2017). Defatting and Sonication Enhances Protein Extraction from Edible Insects. *Korean J Food Sci Anim Resour*, 37(6), 955-961. <https://doi.org/10.5851/kosfa.2017.37.6.955>.



- Chiodza, K., & Goosen, N. J. (2024). Viscosity, mixing regime and power consumption analysis during enzymatic hydrolysis of fish (*Sardina pilchardus*) processing by-products, through development of power number and Reynolds number correlations. *Food and Bioproducts Processing*, 143, 178-190. <https://doi.org/10.1016/j.fbp.2023.11.008>
- De Man, J.C., Rogosa, M., Sharpe, M.E. (1960). A Medium for the Cultivation of *Lactobacilli*. *Journal of Applied Bacteriology*, 23, 130–135.
- Dewi, E. R. S. (2014). Pertumbuhan Kultur Probiotik Hasil Isolat Bakteri Non Patogen dalam Berbagai Jenis Media. *Jurnal Pendidikan Biologi FPMIPA IKIP PGRI*, 53-65.
- Dewi, M. A., Nocianitri, K. A., Hatiningsih, S., & Rahayu, E. S. (2024). Optimalisasi Konsentrasi Pepton Ikan Pada media kultur terhadap Pertumbuhan Probiotik *Lactiplantibacillus plantarum* Kita-3. *Jurnal Ilmu dan Teknologi Pangan (ITEPA)*, 13(3), 627-637. <https://doi.org/10.24843/itepa.2024.v13.i03.p14>
- El-Gharbawi, M., dan Whitaker, J.R. (1963). Factors Affecting Enzymatic Solubilization of Beef Proteins. *Journal of Food Science*, 28(2), 168-172. <https://doi.org/10.1111/j.1365-2621.1963.tb00177.x>
- Erawantini, F., Nugroho, E., Sanjaya, G. Y., & Hariyanto, S. (2013). Rekam Medis Elektronik : Telaah Manfaat Dalam Konteks Pelayanan Kesehatan Dasar. *FIKI*, 1(1), 1-11.
- Fallah, M., Bahram, S., & Javadian, S. R. (2015). Fish Peptone Development Using Enzymatic Hydrolysis of Silver Carp By-Products as a Nitrogen Source in *Staphylococcus aureus* Media. *Food Science & Nutrition*, 3(2), 153-157. <https://doi.org/10.1002/fsn3.198>
- FAO and WHO. (2021). Health and Nutritional Properties of Probiotics in Food Including Powder Milk with Live Lactic Acid Bacteria. October 1–34.
- Fatma F. (2017). *Seleksi dan Pemurnian Bakteri Proteolitik Isolat HTcUM3-9 dari Tauco Pasar Besar Kota Malang untuk Isolasi Kolagen dari Sisik Ikan Bandeng*. Jurusan Kimia, Universitas Negeri Malang, Malang.



- Fatmawati, & Mardiana. (2014). Tepung Ikan Gabus sebagai Sumber Protein (Food Supplement). *Jurnal Bionature*, 15(1), 54 - 60. <https://ojs.unm.ac.id/bionature/article/view/990/253>
- Febriana, S., Angraini, D., Lakapu, E., Hidayati, E., Kerinandhila, Riska, N., & Sanjaya, E. H. (2023). Pengaruh Inhibitor terhadap Aktivitas Enzim. *Jurnal MIPA dan Pembelajarannya*, 3(5), 224. <https://journal3.um.ac.id/index.php/mipa/article/view/5096/3054>
- Fitriyani, E., Nuraenah, N., & Deviarni, I. M. (2020). Perbandingan Komposisi kimia, Asam Lemak, Asam amino Ikan Toman (*Channa micropeltes*) Dan Ikan Gabus (*Channa Striata*) Dari Perairan Kalimantan Barat. *MANFISH JOURNAL*, 1(02), 71-82. <https://doi.org/10.31573/manfish.v1i02.121>
- Huynh, D., Kaschabek, S. R., & Schlömann, M. (2020). Effect of inoculum history, growth substrates and yeast extract addition on inhibition of *Sulfobacillus thermosulfidooxidans* by NaCl. *Research in microbiology*, 171(7), 252-259.
- Indrawati, T. (1983). *Pembuatan Kecap Keong Sawah dengan Menggunakan Enzim Bromelin*. Jakarta : Balai Pustaka
- Jaya, F. M., Sari, L. P., Utpalasari, R. L., Liuhartana, R., Wahyuni, R., & Sari, Y. F. (2024). Produksi Hidrolisat Protein Kepala Ikan Gabus Secara Enzimatis dengan Variasi Waktu Hidrolisis. *Jurnal Ilmu-ilmu Perikanan dan Budidaya Perairan*, 19(1), 76-87. <https://doi.org/10.31851/jipbp.v19i1.16255>
- Jumiono, A., Mardiah, M., Amalia, L., & Puspasari, E. (2024). Identifikasi Titik Kritis Kehalalan Produk Mikrobiologi. *Jurnal Ilmiah Pangan Halal*, 6(1), 86. <https://doi.org/10.30997/jiph.v6i1.10633>
- Karimirad, R. (2023). Exploring The Effect of Temperature on The Concentration of Salicylic Acid in Acetylsalicylic Acid. *ChemRxiv*. <https://doi.org/10.26434/chemrxiv-2023-f61jq>
- Kristensen, J. B., Felby, C., & Jørgensen, H. (2009). Yield-Determining Factors in High-Solids Enzymatic Hydrolysis of Lignocellulose. *Biotechnology for Biofuels*, 2(1), 1-10. <https://doi.org/10.1186/1754-6834-2-11>.



- Kurniati, K., & Hafsan, H. (2022). Halal critical point of microbial bioprocess based-dairy products. *Journal of Islam and Science*, 9(1), 10. <https://doi.org/10.24252/jis.v9i1.28804>
- Kusuma, E.N. (2016). *Hidrolisis Protein Daging Sapi oleh Enzim Bromelin dan Papain Kasar untuk Menghasilkan Pepton Halal* [ Undergraduate's thesis]. Available at: <https://etd.repository.ugm.ac.id/penelitian/detail/97303> (Accessed: 22 April 2025).
- Lestari, W. (2018). *Optimasi Hidrolisis Protein Jamur Secara Enzimatis Menggunakan Metode Permukaan Respon* [Master's thesis]. <http://repository.unej.ac.id/handle/123456789/93251>
- Listyanto, N., & Andriyanto, S. (2009). Ikan gabus (*Channa striata*) Manfaat Pengembangan dan Alternatif Teknik Budidayanya. *Media Akuakultur*, 4(1), 18-25. <https://doi.org/10.15578/ma.4.1.2009.18-25>.
- Ma, Y., Sun, X., & Wang, L. (2015). Study on optimal conditions of Alcalase enzymatic hydrolysis of soybean protein isolate. *Advance Journal of Food Science and Technology*, 9(2), 154-158. <https://doi.org/10.19026/ajfst.9.1952>
- Manik, B.S. *et al.* (2024). Karakteristik Pepton Ikan Kembung (*rastrelliger sp.*) Tidak Layak Konsumsi dan Aplikasi Pada pertumbuhan *Wickerhamomyces Anomalus*. *Jurnal Pengolahan Hasil Perikanan Indonesia*, 27(10), 964–974. <https://doi.org/10.17844/jphpi.v27i10.54017>
- Masri, M. (2014). Isolasi dan Pengukuran Aktivitas Enzim Bromelin dari Ekstrak Kasar Bonggol Nanas (*Ananas comosus*) pada Variasi Suhu dan pH. *Biosel: Biology Science and Education*, 2(2), 119-125. <https://doi.org/10.24252/bio.v2i2.478>
- Mustafa, A., Widodo, M. A., & Kristianto, Y. (2012). Albumin And Zinc Content Of Snakehead Fish (*Channa striata*) Extract and Its Role in Health. *IEESE International Journal of Science and Technology (IJSTE)*, 1(2), 1-8.
- Miratis, S. T., Sulistiyati, T. D., & Suprayitno, H. E. (2013). Pengaruh Suhu Pengukusan Terhadap Kandungan Gizi dan Organoleptik Abon Ikan Gabus

- (*Ophiocephalus striatus*). *Jurnal Mahasiswa Teknologi Hasil Perikanan*, 1(1), 33-45.
- Nurfaidah, Metusalach, Sukarno, & Mahendradatta, M. (2021). Protein and Albumin Contents in Several Freshwater Fish Species of Makassar, South Sulawesi, Indonesia. *International Food Research Journal*, 28(4), 745-751. <https://doi.org/10.47836/ifrj.28.4.11>
- Okrouhlá, M., Stupka, R., Čítek, J., Šprysl, M., Trnka, M., & Kluzáková, E. (2008). Effect of lean meat proportion on the chemical composition of pork. *Czech Journal of Food Sciences*, 26(6), 464-469. <https://doi.org/10.17221/18/2008-cjfs>
- Palla, A. N. F. (2022). *Hidrolisat Protein Jeroan Ikan Kerapi (Epinephelus sp) Menggunakan Ekstrak Kasar Enzim Bromelin* [Undergraduate's thesis]. Universitas Hasanuddin Makassar.
- Poba, D., Ijirana, & Sakung, J. (2019). Aktivitas Enzim Bromelin Kasar Berdasarkan Tingkat Kematangan Buah Nanas. *Jurnal Akademika Kimia*, 8(4), 236-237. <https://doi.org/10.22487/j24775185.2019.v8.i4.pp236-241>
- Poedjiadi, A dan Supriyanti, T.F.M. 2006. *Dasar-dasar Biokimia*. Jakarta : UI Press.
- Pratiwi, R. D., Zanjabila, S., Fairuza, D., Aminah, A., Praharyawan, S., & Fuad, A. M. (2020). Evaluation of Alternative Components in Growth Media of *lactobacillus brevis* for Halal Probiotic Preparation. *ANNALES BOGORIENSES*, 24(1), 11-17. <https://doi.org/10.14203/ann.bogor.2020.v24.n1.11-17>
- Purnama, R, C., Winahyu. D. A., Sari, D, S. (2019). Analisis Kadar Protein pada Tepung Kulit Pisang Kepok (*Musa acuminata balbisiana colla*) dengan Metode Kjeldahl. *Jurnal Analisis Farmasi*, 4(2), 77-83. <https://doi.org/10.33024/jaf.v4i2.2234>
- Puteri, N. E., & Febriansyah, M. I. (2023). Fatty acid profile of Snakehead (*Channa striata*) and its by-product by GC-MS. *Journal of Nutrition Science*, 4(2), 60-65. <https://doi.org/10.35308/jns.v4i2.8103>



- Putri, S. K. (2012). PENAMBAHAN ENZIM BROMELIN UNTUK MENINGKATKAN PEMANFAATAN PROTEIN PAKAN DAN PERTUMBUHAN BENIH NILA LARASATI (*Oreochromis niloticus* Var. *Journal of Aquaculture Management and Technology*, 1(1), 63-76. <https://ejournal3.undip.ac.id/index.php/jamt/article/view/503>.
- Rachmat, S. S., & Shovitri, M. (2022). Studi Literatur Tentang Teknik Liofilisasi untuk Preservasi Bakteri. *Jurnal Sains dan Seni ITS*, 10(2), 17-22. <https://doi.org/10.12962/j23373520.v10i2.62855>
- Rahman, M. A., R. Molla, M. H., Sarker, M. K., Chowdhury, S. H., & Saikh, M. M. (2018). Snakehead Fish (*Channa striata*) and Its Biochemical Properties for Therapeutics and Health Benefits. *Journal of Biotechnologies and Biomedical Engineering*, 1(1), 1005. <https://scienceforecastoa.com/>
- Rahmawati, R., & Basriman, I. (2017). Pengaruh jenis starter terhadap mutu zeagurt probiotik. *JURNAL KONVERSI*, 6(1), 19-30. <https://doi.org/10.24853/konversi.6.1.19-30>.
- Rieuwpassa, F. J., Karimela, E. J., & Karaeng, M. C. (2020). Analisis Fisiko Kimia Konsentrat Protein Ikan Nila (*Oreochromis niloticus*) yang Diekstrak Menggunakan Pelarut Etanol. *Jurnal Teknologi Perikanan dan Kelautan*, 11(1), 45-52. <https://doi.org/10.24319/jtpk.11.45-52>
- Rozali, Z.F., Zaidiyah and Lubis, Y.M. (2023). Hidrolisis Protein Beras oleh Ekstrak Kasar Enzim Bromelin. *Jurnal Bioleuser*, 7(1), 11–14. doi:<http://www.jurnal.unsyiah.ac.id/bioleuser>.
- Sajib, M., Albers, E., Langeland, M., & Undeland, I. (2020). Understanding the Effect of Temperature and Time on Protein Degree of Hydrolysis and Lipid Oxidation During Ensilaging of Herring (*Clupea harengus*) Filletting Co-products. *Scientific Reports*, 10(1), 1-13. <https://doi.org/10.1038/s41598-020-66152-0>.
- Salmatia, S., Isamu, K.T. and Sartinah, A. (2020). Pengaruh Proses Perebusan dan Pengukusan Terhadap Kandungan Albumin dan Proksimat Ikan gabus (*channa striata*). *Jurnal Fish Protech*, 3(1), 67–73. <https://doi.org/10.33772/jfp.v3i1.11606>



- Sasongko, H., Zulpadly, M., & Farida, Y. (2023). An evaluation of potential fatty acids nutrition in snakehead fish (*Channa striata*) waste. *Food Research*, 7(4), 30-35. [https://doi.org/10.26656/fr.2017.7\(4\).285](https://doi.org/10.26656/fr.2017.7(4).285)
- Setiyani, A. R., Rachmawati, D., & Sudaryono, A. (2017). Pengaruh Pemberian Ekstrak Nanas Pada Pakan dan Probiotik Pada Media Pemeliharaan Terhadap Efisiensi Pemanfaatan Pakan dan Pertumbuhan Ikan Nila (*Oreochromis niloticus*). *Jurnal Sains Teknologi Akuakultur*, 1(2), 70-78.
- Septiani, T., Utami, T., & Suroto, D. A. (2024). *Pengembangan Media Halal Berbasis Bubuk Pepton Daging untuk Produksi Bakteri Probiotik* [Undergraduate's thesis].  
<https://etd.repository.ugm.ac.id/penelitian/detail/237454>
- Soeparno. 2009. *Ilmu dan Teknologi Daging*. Gadjah Mada University Press. Yogyakarta.
- Stulova, I., Kabanova, N., Kriščiunaite, T., Laht, T. M., & Vilu, R. (2011). The Effect of Milk Heat Treatment on The Growth Characteristics of Lactic Acid Bacteria. *Agronomy Research*, 9(2), 473-478.
- Subagiyo, S., Margino, S., & Triyanto, T. (2016). Pengaruh Penambahan Berbagai Jenis Sumber Karbon, Nitrogen dan Fosfor pada Medium Deman, Rogosa and Sharpe (MRS) Terhadap Pertumbuhan Bakteri Asam Laktat Terpilih Yang Diisolasi dari Intestinum Udang Penaeid. *Jurnal Kelautan Tropis*, 18(3), 127-132. <https://doi.org/10.14710/jkt.v18i3.524>
- Sufian, M., Hira, T., Miyashita, K., Nishi, T., Asano, K., & Hara, H. (2006). Pork Peptone Stimulates Cholecystokinin Secretion from Enteroendocrine Cells and Suppresses Appetite in Rats. *Bioscience, Biotechnology, and Biochemistry*, 70(8), 1869-1874. <https://doi.org/10.1271/bbb.60046>
- Sunarno, I. O. N. (2020). *Peran Enzim dalam Pembuatan Pepton Berbahan Dasar Ikan Terhadap Kualitas dan Media Pertumbuhan Mikroba* [Undergraduate's thesis].  
<https://repository.ub.ac.id/id/eprint/182809/12/Ipin%20Orshella%20Nurwilis%20Sunarno.pdf>



- Supriyatna, A., Jauhari, A. A., & Holydaziah, D. (2015). Aktivitas Enzim Amilase, Lipase, dan Protease dari Larva *Hermetia illucens* yang Diberi Pakan Jerami Padi. *Jurnal Istek*, 9(2), 18-19. <https://journal.uinsgd.ac.id/index.php/istek/article/view/186>
- Suryani, R. (2023). *Pemanfaatan Ampas Ikan Gabus Sebagai Sumber Pepton Media Produksi Lactiplantibacillus plantarum subsp. plantarum Dad-13* [Unpublished undergraduate's thesis]. Universitas Gadjah Mada.
- Tambunan, A. R. (2016). *Karakteristik Probiotik Berbagai Jenis Bakteri Asam Laktat (BAL) Pada Minuman Fermentasi Laktat Sari Buah Nanas* [Undergraduate's thesis]. Universitas Lampung.
- Telaumbanua, B. V., Telaumbanua, P. H., Lase, N. K., & Dawolo, J. (2023). Penggunaan Probiotik Em4 Pada Media Budidaya Ikan: Review. *TRITON: Jurnal Manajemen Sumberdaya Perairan*, 19(1), 36-42. <https://doi.org/10.30598/tritonvol19issue1page36-42>
- Teshnizi, Z. M., Robotjazi, S. M., & Mosaabadi, J. M. (2020). Optimization of the Enzymatic Hydrolysis of Poultry Slaughterhouse Wastes using Alcalase Enzyme for the Preparation of Protein Hydrolysates. *Applied Food Biotechnology*, 7(3), 153-160. <https://doi.org/10.22037/afb.v7i3.28417>
- Truc, T.T., Thanh, L.K., Muoi, N.V. (2008). *Effect of pH and Temperature on Activity of Bromelain in Pineapple Fruit*. Department of Food Technology, Can Tho University. P.138.
- Uribe, S., & Sampedro, J. G. (2003). Measuring solution viscosity and its effect on enzyme activity. *Biological Procedures Online*, 5, 108-115. <https://doi.org/10.1251/bpo52>.
- Utami, T., Cindarbhumii, A., Khuangga, M. C., Rahayu, E. S., Cahyanto, M. N., Nurfiyanti, S., & Zulaichah, E. (2020). Preparation of Indigenous lactic acid bacteria starter cultures for large scale production of fermented milk. *Digital Press Life Sciences*, 2(00010), 1-7. <https://doi.org/10.29037/digitalpress.22327>
- Wahidah, T. H., Mustikaningtyas, D., Widiatningrum, T., & Dewi, P. (2022). Pengaruh Faktor Lingkungan terhadap Pertumbuhan *Trichoderma* spp. dan

- Aktivitas Enzim Amilase dan Xilanase. *Life Science*, 11(2), 109.  
<https://journal.unnes.ac.id/sju/UnnesJLifeSci/article/view/64379>
- Wahyudi, V. A., Wachid, M., & Erykawati, L. (2021). Komposisi Nutrisi Media Alternatif Dari Kulit Singkong, Kulit Pisang, dan Whey Tahu Serta Pola Pertumbuhan Bakteri *lactobacillus bulgaricus*. *Jurnal Sains dan Teknologi Pangan*, 6(2), 3856-3865. <https://doi.org/10.33772/jstp.v6i2.16346>.
- Wahyuni, S. (2015). *Perbedaan Pertumbuhan Bakteri Escherichia coli yang Ditanam Pada Media Nutrient Agar dengan Menggunakan Bahan Beef Ekstrak dan Ekstrak Ikan Gabus*. [Undergraduate'sthesis]. <http://repository.um-surabaya.ac.id/id/eprint/1435>.
- Wahyuni, S., Suarya, P., & Saputra, I. M. (2017). Isolasi Enzim Amilase dari Kecambah Biji Jagung Lokoal Seraya (*Zea mays L.*) untuk Hidrolisis Pati. *Jurnal Kimia*, 11(2), 122-128. <https://doi.org/10.24843/jchem.2017.v11.i02.p04>
- Wang, L., Mao, X., Cheng, X., Xiong, X., & Ren, F. (2010). Effect of Enzyme Type and Hydrolysis Conditions on The In Vitro Angiotensin I-Converting Enzyme Inhibitory Activity and Ash Content of Hydrolysed Whey Protein Isolate. *International Journal of Food Science & Technology*, 45(4), 807-812. <https://doi.org/10.1111/j.1365-2621.2010.02210.x>
- Widyastuti, Y. R., Mundayana, Y., Kadarini, T., Murniasih, S., & Saputra, A. (2023). *International Seminar on Fish and Fisheries Sciences (ISFFS 2023)*. EDP Sciences. <https://doi.org/10.1051/e3sconf/202344202041>
- Yunita, M., Hendrawan, Y., & Yulianingsih, R. (2015). Analisis Kuantitatif Mikrobiologi pada Makanan Penerbangan (Aerofood ACS) Garuda Indonesia Berdasarkan TPC (Total Plate Count) dengan Metode Pour Plate. *Jurnal Keteknik Pertanian Tropis dan Biosistem*, 3(3), 237-248.
- Zeng, Z., Zheng, M., Zhao, M., Guo, J., Zhu, S., Zou, X., & Zeng, Q. (2024). Comparison of nutritional value of snakehead fish from Guangdong and Deqing varieties. *PLOS ONE*, 19(3), e0301203. <https://doi.org/10.1371/journal.pone.0301203>