

## DAFTAR PUSTAKA

- Ahmadi, K. & Estiasih, T. (2009). *Teknologi Pengolahan Pangan*. Bumi Aksara. Jakarta
- Alviyulita, M., Hasibuan, P. R. M., & Hanum, F. (2014). Pengaruh Penambahan Ammonium Sulfat (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub> dan Waktu Perendaman Buffer Fosfat Terhadap Perolehan Crude Papain dari Daun Pepaya (*Carica Papaya*, L). *Jurnal Teknik Kimia USU*, 3 (3)
- Amza ,T., Balla, A., Tounkara, F., Man, L., & Zhou, H.M. (2013). Effect of Hydrolysis Time on Nutritional, Functional and Antioxidant Properties of Protein Hydrolysates Prepared from Gingerbread Plum (*Neocarya macrophylla*) seeds. *International Food Research*. 20, 2081-2090.
- Atanasova J. & Ivanova I. (2010). Antibacterial Peptides From Goat and Sheep Milk Proteins. *Biotechnol Equip*. 24, 1799-1803.
- Bougatef, A., Balti, R., Haddar, A., Jellouli, K., Souissi, N., & Nasri, M. (2012). Antioxidant and Functional Properties of Protein Hydrolysates of Bluefin Tuna (*Thunnus thynnus*) Head as Influenced by The Extent of Enzymatic Hyrolysis. *Biotechnology and Bioprocess Engineering*, 17, 841-852.
- Bordbar, S., Ebrahimpour, A., Hamid, A.A. & Saari, N. (2013). The Improvement of The Endogenous Antioxidant Property of Stone Fish (*Actynoyga Lecanora*) Tissue Using Enzymatic Proteolysis. *Biology and Medical Research International*, 9(1), 15-18
- Burgess R., R. (2009). *Protein precipitation techniques*. Di dalam: Burgess dan Murray, editor. *Methods in Enzymology*. Wisconsin (US): Elsevier, 463,331-342.
- Chakrabarti, S., Jahandideh, F. & Wu, J. (2004). Food-derived Bioactive Peptides on Inflammation and Oxidative Stress. *Journal of Biomed Research International*. 1, 1-11.
- Djide, N., & Syahrudin, S. (2006). *Analisis Mikrobiologi Farmasi*. Laboratorium Mikrobiologi Farmasi Fakultas Matematika dan Ilmu Pengetahuan Alam Universitas Hasanudin. Makassar.
- Doi, R.H. & Martina, M. (1992). *Biology of Bacilli*. Stoneham: Butterworth-Heinemann
- El-Sayed, M., & Awad, S. (2019). Milk Bioactive Peptides : Antioxidant, Antimicrobial and Anti-Diabetic Activities. *Advances in Biochemistry*, 7(1), 22

- El-Sayef, E. M., & Abdul-Raouf, U. M. (2004). Production, Purification and Characterization of Protease Enzyme from *Bacillus subtilis*. *International Conference for Development and The Environment in The Arab World*, 14.
- Fang, Y. Z., Yang, S., & Wu, G. (2002). Free Radicals, Antioxidants, and Nutrition. *Nutrition*, 18(10), 872-879.
- Ferdian, H. (2006). Potensi Protease *Bacillus subtilis* Nato sebagai Pengempuk Daging. *Skripsi*. Bandung : Institut Teknologi Bandung.
- Gobbetti, M., Minervini, F., & Rizzello, C. G. (2012). Bioactive Peptides in Dairy Products. *International Journal of Dairy Technology*, 65(1), 1–12.
- González-Rábade N., Badillo-Corona, J.A., Aranda-Barradas, J.S. & Oliver-Salvador, M.D.C. (2011). Production of Plant Proteases in Vivo and in Vitro. a review. *Biotechnology Advance*, 29, 983–996.
- Granner, D.K., Mayes, P.A., Murray, R.K. & Rodwell, V.W. (2003). *Harper's Illustrated Biochemistry, 26th edition*, Mc Graw-Hill Companies. Inc. New Delhi.
- Gunarti, D.R., Rahmi, H. & Sadikin, M. (2013). Isolation and Purification of Thiamine Binding Protein from Mung Bean, *HAYATI Journal of Biosciences*, 20, 1-6
- Gurung, N., Ray, S., Bose, S. & Rai, V. (2013). A Broader View: Microbial Enzymes and Their Relevance in Industries, Medicine, and Beyond. *Biomed Research International*, 3, 29-121.
- Hames BD, Hooper NM. (2000). *Biochemistry: The Instant Notes. Ed. ke-2*. Hongkong : Springer-Verlag.
- Hasibuan, M.A., Restuhadi, F. & Rossi, E. (2017). Uji Aktivitas Enzim Selulolitik dari Bekicot (*Achatina fulica*) pada beberapa Substrat Limbah Pertanian. *Jurnal Online Mahasiswa (JOM) Bidang Pertanian*, 4 (1), 1-2.
- Holt, J.G., Krieg, N.R., Tenenb, J.T. & Williams, S.T. (2004). *Bergey's manual of Determinative Bacteriology Edisi ke 9*. Philadelphia : lippincott Williams & Wilkins. A. Wolters Company.
- Jawetz, E., Melnick, J.L. & Adelberg, E.A. (1995). *Review of Medical Microbiology*. California : Lange Medical Publication.
- Juniarti, Osmeli, D., & Yuhernita. (2009). Kandungan Senyawa Kimia, Uji Toksisitas (Brine shrimp lethality test) dan Antioksidan (1,1-diphenyl-2-pikrilhidrazil) dari Ekstrak Daun Saga (*Abrus precatorius* L.). *Makara Sains*, 13(1), 50-54.

- Koleva, Van, T.A., Linsen, P.H., Groot, A. & Evstatieva L.N. (2002). Screening of Plant Extracts for Antioxidant Activity: A Comparative Study on Three Testing Methods. *Phytochemical Analysis*, 13, 8-17
- Katoch, R. (2011). *Analytical Techniques in Biochemistry and Molecular Biology*. New York : Springer Science.
- Korhonen, H. (2009). Milk-derived Bioactive Peptidas : from Science to Applications. *Journal of Functional Foods*, 1 : 177-187.
- Kusumaningtyas, E. (2013). Peran Peptida Susu sebagai Antimikroba untuk Meningkatkan Kesehatan. *Jurnal Teknologi dan Industri Pangan*, 23(2):63-75.
- Kusumaningtyas, E., Widiastuti, R., Kusumaningrum, H.D. & Suhartono, M.T. (2015). Aktivitas Antibakteri dan Antioksidan Hidrolisat Hasil Hidrolisis Protein Susu Sapi dengan Ekstrak Kasar Protease. *Jurnal Teknologi dan Industri Pangan*, 26(2):179-188.
- Lehninger, A.L. (2005). *Principles of Biochemistry, fourth edition*, New York : Academic Press
- Lestari, P. & Suyata. (2020). Aktivitas Antioksidan Protein Hidrolisat dari Kasein Susu Kambing Etawa Hasil Hidrolisis Bromelin dari Daun Nanas Madu. *Jurnal Gizi dan Pangan*, (4)1.
- Lestari, P., Suyata, Irmanto, Kuspriyantari, J.N., & Sari, L.Y. (2021). Hidrolisis Protein Susu Kambing Etawa Berpotensi Antioksidan Dengan Enzim Protease Dari *Bacillus Subtilis* B298, *Prosiding Seminar Nasional*, Universitas Jenderal Soedirman
- Li, Y., Yu, J., Goktepe, I. & Ahmedna, M. (2016). The Potential Of Papain and Alcalase Enzyme and Process Optimizations to Reduce Allergenic Gliadins in Wheat Flour, *Food Chemistry*, 196: 13388- 1345.
- Linggarjati, K. F., Djunaedi, A. & Subagiyo. (2013). Uji Penggunaan *Bacillus* sp. sebagai Kandidat Probiotik untuk Pemeliharaan Rajungan (*Portunus* sp.). *Journal Of Marine Research*, 2(1), 1-6.
- Lorenzon, E. N., G. F. Cespedes, E. F. Vicente, L.G. Nogueira, T. M. Bauab, M. S. Castro, & E. M. Cilli. (2012). Effect of Dimerization on the Structure and Biological Activity of Antibacterial Peptida Ctx-Ha. *Journal Antimicrobial Agents* Ch. 56 : 3004-3010
- Madigan, M.T., Martinko, J.M. & Parker, J. (2009). *Biology of Microorganism. 9th Edition*. Prentice Hall International, Inc. New Jersey

- Mahmud, M. (2001). *Teknik Penyimpanan dan Pemeliharaan Mikroba*. Bogor : Balai Penelitian Bioteknologi Tanaman Pangan.
- Matthews, C.K., Van-Holde, K.E. & Ahern, K.G. (2000). *Biochemistry, 3rd edition*. Addison-Wesley Publishing Company. San Fransisco.
- M. J. L. and B. E. Pierce. (2005). *Microbiology Laboratory Theory & Application Third Edition*. Colorado : Morton Publishing.
- Mohanty, D. P., Mohapatra, S., Misra, S. & Sahu, P. S.(2016). Milk derived Bioactive Peptides and Their Impact on Human Health – A review. *Saudi Journal of Biological Sciences*, 23(5), 577–583.
- Moslehishad, M., Salami, M. & Ehsani, M. R. (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. *Internatinal Dairy Journal*. 29, 82-87.
- Molyneux, P. (2004). The Use of The Stable Free Radical Diphenylpicrylhydrazil (DPPH) for Estimating Antioxidant Activity. *Journal Science and Technology*, 26(2), 211-219.
- Muchtadi, D. (2009). *Gizi Anti penuaan Dini*. Bandung : Alfabeta.
- Murray, R. & Daryl, D. (2009). *Biokimia Harper*. Jakarta: Mcgraw-Hill Companies Inc
- Najafi, M.F., Deobagkar, D. & Deobagkar, D. (2005).Potential Application of Protease Isolated from *Pseudomonas aeruginosa* PD100. *Electronic Journal of Biotechnology*, 8 (2).
- Naiola, E., & Widhyastuti, N. (2007). Semi Purifikasi dan Karakterisasi Enzim Protease *Bacillus* sp. *Penelitian Hayati*, 13, 51-56
- Najmiyati, E., & Akhadi, D.H. (2012).Viabilitas dan Kinerja Konsorsium Mikroba Pendegradasi Hidrokarbon setelah Penyimpanan dalam Pendingin dan Penyimpanan Beku,*Ecolab*. 6 (2), 61-104.
- Neldawati, Ratnawulan, & Gusnedi. (2013). Analisis Nilai Absorbansi dalam Penentuan Kadar Flavonoid untuk Berbagai Jenis Daun Tanaman Obat. *Pillar of physics*, 2, 76-83.
- Nurkhotimah. (2017). Pengaruh Suhu dan pH terhadap Aktivitas Enzim Fosfatase Bakteri Termofilik Sungai Gendol Pasca Erupsi Merapi. *Jurnal Prodi Biologi*, 6(8), 465- 471.
- Ohtani, H., Koyabu, N., Nakamura, T., Uchiumi, T., Kuwano, M., & Sawada, Y. (2000). Inhibition of P-glycoprotein by Flavonoid Derivatives in

- Adriamycin Resistant Human Myelogenous Leukemia (K562/ADM) Cells. *Cancer Letters*, 177, 89–93.
- Padaga, M.C., & Aulanni'am. (2017). *Susu sebagai Nutra-setika untuk Penyakit Gangguan Metabolik*. Malang : Universitas Brawijaya Press.
- Park, Y. W. & Nam, M. S. (2015). Bioactive Peptides in Milk and Dairy Products : *A Review Functionalities of Bioactive Peptides*, 35(6), 831–840.
- Pasupuleti, V. K., & Demain, A. L. (2010). *Protein Hydrolysates in Biotechnology*. Inggris: Springer Publishin, 3-5.
- Playne, M. J., Bennett, L. E. & Smithers, G. W. (2003). Functional Dairy Foods and Ingredients. *Australian Journal of Dairy Technology*, 58(3), 242–264.
- Pratimasari, D. (2009). Uji Aktivitas Penangkap Radikal Buah Carica Papaya L. Dengan Metode DPPH dan Penetapan Kadar Fenolik Serta Flavonoid Totalnya. *Skripsi*. Universitas Muhammadiyah Surakarta. Surakarta
- Prihatiningsih, N., Soedarmono, Arwiyanto, T. Hadisutrisno, B. (2006). Pengendalian Hayati Penyakit Layu Bakteri Kentang dengan Bacillus sp.: Eksplorasi dan Pengujian In Vitro dan di Rumah Plastik. *Agrosains*, 8(1): 27-31
- Purwanto, M.G.M. (2014). Perbandingan Analisa Kadar Protein Terlarut dengan Berbagai Metode Spektroskopi UV-Vis. *Jurnal Sains dan Teknologi*. 7, 64-71.
- Purwoko, T., & Handajani, N. S. (2007). Kandungan Protein Kecap Manis Tanpa Fermentasi Moromi Hasil Fermentasi *Rhizopus oryzae* dan *R. oligosporus*, *Biodiversitas*. 8(3), 223-227.
- Qian, B., Xing, M., Cui, L., Deng, Y., Xu, Y., Huang, M. & Zhang, S. (2011). Antioxidant, Antihypertensive, and Immunomodulatory Activities of Peptide Fractions from Fermented Skim Milk with *Lactobacillus Delbrueckii* spp. *bulgaricus* LB340. *Journal of Dairy Research*, 78, 72-79.
- Ramalingam, C., Srinath, R., Islam, N.N. (2012). *Isolation and Characterization of Bromelain from Pineapple (Ananas Comosus) and Comparing its Antibrowning Activity on Apple Juice with Anti-browning Agents*. India: Elixir Food Science.
- Ratnayani, K., & Laksmiwati, M. (2014). Skrining Aktivitas Protease pada Getah Tanaman (Labu Siam, Lidah Buaya dan Talas) serta Perbandingannya terhadap Getah Pepaya. *Laporan Akhir Penelitian Dosen Muda*. Bali : Universitas Udayana.

- Roosdiana, A., H. Kartikaningsih, Suharjono, R. Peranginangin, dan Murdinah. (2002). Isolasi dan Karakterisasi *Bacillus* sp Penghasil Protease dari Kulit Ikan Kakap Merah (*Lutjanus sanguineus*). *Jurnal Ilmu-Ilmu Hayati (Life Sciences)*, 14(2).
- Reynertson, K. A. (2007). Phytochemical Analysis of Bioactive Constituents from Edible Myrtaceae Fruit, *Dissertation*. The City University of New York.
- Said, M. I. & Likadja, L.K. (2012). Isolasi dan Identifikasi Bakteri yang Berpotensi sebagai Penghasil Enzim Protease pada Industri Penyamakan Kulit pt. adhi Satria Abadi (ASA), Yogyakarta. *Jurnal Ilmu dan Teknologi Pangan*, 2 (2), 121-128.
- Sanam, A.B., Bagus, I. & Swacita, N. (2014). Ketahanan Susu Kambing Peranakan Etawa Post-Thawing pada Penyimpanan Lemari Es Ditinjau dari Uji Didih dan alkohol, *Indonesia Medicus Veterinus*, 3(1), 1-8
- Sari, L.Y. (2020). Uji Aktivitas Antioksidan Protein Hidrolisat Hasil Hidrolisis Susu Kambing Dengan Ekstrak Kasar Protease Bakteri *Bacillus Subtilis* B211. *Skripsi*. Universitas Jenderal Soedirman. Purwokerto
- Sarmadi B.H., Ismail A. (2010). Antioxidative peptides from food proteins: a review. *Peptides*. 31, 1949-1956.
- Sayuti, Kesuma, & Yenrina, R. (2015). *Antioksidan Alami dan Sintetik*. Andalas University Press. Padang
- Scherer, R., & Godoy, H. T. (2009). Antioxidant Activity Index (AAI) by the 2,2-diphenyl-1-picrylhydrazyl method. *Food Chem*, 112, 654-658.
- Sinatari, H.M., Aminin A.L.N., Sarjono, P.R. (2013). Pemurnian Selulase dari Isolat Kb Kompos Termofilik Desa Bayat Klaten menggunakan Fraksinasi Amonium Sulfat. *Chemistry info*, 1 (1), 130 - 140
- Soeka, Y. S., & Sulistiani. (2014). Karakterisasi Protease *Bacillus subtilis* A1 Inacc B398 yang Diisolasi dari Terasi Samarinda. *Berita Biologi*, 13(2), 203-212.
- Suhartono, M. T. (2008). *Protease*. Bogor: IPB Press.
- Sumardi dkk. (2015). Aktivitas dan Karakterisasi Enzim Protease Isolat *Bacillus* sp. (uj132) secara Kualitatif dan Kuantitatif. *Jurnal Riset Akuakultur*, 14 (3), 193-199.
- Sumardi, Farisi, S., Ekowati, C. N., & Diana, M.S. (2019). Aktivitas dan Karakterisasi Enzim Protease Isolat *Bacillus* sp. (uj132) secara Kualitatif dan Kuantitatif. *Jurnal Riset Akuakultur*, 14 (3), 193-199.
- Susanti, E. (2003). Penentuan Aktivitas dan Jenis Protease dari *Bacillus* sp. BAC4<sup>1</sup>. *SAINMAT*, 1, 56-57.

- Syukur, R., Alam, G., Mufidah, Rahim, A. & Tayeb, R. (2011). Aktivitas Antiradical Bebas Beberapa Ekstrak Tanaman Familia Fabaceae. *Jurnal Sains Terapan Kesehatan*, 1, 61-67
- Szwajkowska, M., Wolanciuk, A., Barłowska, J., Krol, J. & Zygmunt, L. (2011). Bovine Milk Proteins as The Source of Bioactive Peptides Influencing The Consumers Immune System. *Animal Sciences Papers dan Reports*. 29:269-280.
- Thi, H., T. Vy, T.T. Truc & N. Van. Muoi. (2018). Optimization of Protein Hydrolysis Conditions from Shrimp Head Meat (*Litopenaeus vannamei*) using Commercial Alcalase and Flavourzyme Enzymes. *Can Tho Univ. Journal of Sciences*, 54, 16-25.
- Thu, N. T. A., Khue, N. T. M., Huy, N. D., Tien, N. Q. D., & Loc, N. H. (2020). Characterizations and Fibrinolytic Activity of Serine Protease from *Bacillus subtilis* C10. *Current Pharmaceutical Biotechnology*, 21(2), 110-116.
- Triana, R. (2013). Pemurnian dan Karakterisasi Enzim Glukosa Oksidase dari Isolat Lokal *Aspergillus Niger* (IPBCC.08.610). *Skripsi*. Departemen Biokimia-FMIPA, Bogor : Institut Pertanian Bogor.
- Turan, B. (2010). Role of Antioxidans in Redox Regulation of Diabetic Cardiovascular Complications. *Current Pharmaceutical Biotechnology*, 11 (8), 819-836
- Walker, E.D., & Stachecki, J.A. (2002). *Pest Management for Small Animals a Training Manual for Commercial Pesticide Applicators and Registered Technicians*. Michigan: Michigan State University Extension p.140.
- Ward, O. P., Rao, M. B., & Kulkarni, A. (2009). Proteases, Production. *In Encyclopedia of Microbiology*, 495–511
- Wildman, R.E.C. (2001). *Handbook of Nutraceuticals dan Functional Food*. Boca Raton : CRC Press.
- Wirahadikusumah, M. (1989). *Biokimia: Protein, Enzim dan Asam Nukleat*. Bandung : ITB Press.
- Worthington, C.C., Worthington, V., Worthington, A. (2019). *Introduction to Enzymes*. Worthington Biochemical Corporation : Lakewood USA
- You, L., Zhao, M., Cui, C., Zhao, H., Yang, B. (2009). Effect of degree of hydrolysis on the antioxidant activity of loach (*Misgurnus anguillicaudatus*) protein hydrolysates. *Innovative Food Sciences and Emerging Technology*. 10(2), 235- 240.

- Yimcharoen, M., Kittikunnathum, S., Suknikorn, C., Nak-On, W., Yeethong, P., Anthony, T. G., & Bunpo, P. (2019). Effects of Ascorbic Acid Supplementation on Oxidative Stress Markers in Healthy Women Following a Single Bout of Exercise. *Journal of the International Society of Sports Nutrition*, 16(1), 1–9
- Zusfahair, Lestari, P. & Asnani, A. (2011). Isolasi dan Karakterisasi Protease Alkalin dari Isolat Bakteri Limbah Ternak di Exfarm Fakultas Peternakan Unsoed . *Molekul*, 6(1), 46 – 56
- Zou, T.B. I. (2016). The Structure–activity Relationship of the Antioxidant Peptides from Natural Proteins. *Molecules*, 21, 1-14

