UNIVERSITAS
GADJAH MADA
**Pengaruh Kepadatan Starter Lactiplantibacillus plantarum GMP1 terhadap Aktivitas Antioksidan Terasi
Udang Rebon Selama Fermentasi**
Nabila Rasyiida Jasmine, Ir. Mgs. Muh.Prima Putra, S.Pi., M.Sc., Ph.D., IPM.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

DAFTAR PUSTAKA

Ali, A., K. K. Bukhsh, M. M. Raza, M. T. Afraz, D. Tazeddinova, M. Waseem, M. F. Manzoor, dan G. Abdi 2025. Exploring the structure–activity relationships and molecular mechanisms of food-derived antioxidative peptides in mitigating oxidative stress: a comprehensive review. Journal of Functional Foods, 127: 106751.

Aliya, H., N. Maslakah, T. Numrapi, A. P. Buana, dan Y. N. Hasri 2016. Pemanfaatan asam laktat hasil fermentasi limbah kubis sebagai pengawet anggur dan stroberi. Bioedukasi: Jurnal Pendidikan Biologi, 9(1): 23–28.

Alkema, W., J. Boekhorst, M. Wels, dan S. A. F. T. van Hijum 2016. Microbial bioinformatics for food safety and production. Briefings in Bioinformatics, 17(2): 283–292.

Al-Ridho, E. 2013. Uji aktivitas antioksidan ekstrak metanol buah lakum (*cayratia trifolia*) dengan metode DPPH (2,2-difenil-1-pikrilhidrazil). Jurnal Mahasiswa Farmasi Fakultas Kedokteran UNTAN, 1(1): 1–20.

Amiza, M. A., Y. L. Kong, dan A. L. Faazaz 2012. Effect of hydrolysis on physicochemical properties of cobia (*Rachycentron canadum*) Frame Hydrolysate. International Food Research Journal, 19(1): 199–206.

An, Y., X. Cai, L. Cong, Y. Hu, R. Liu, S. Xiong, dan X. Hu 2022. Quality improvement of zhayu, a fermented fish product in China: effects of inoculated fermentation with three kinds of lactic acid bacteria. Foods, 11(18): 2756.

Arasu, M. V., N. A. Al-Dhabi, S. Ilavenil, K. C. Choi, dan S. Srigopalram 2016. In vitro importance of probiotic *Lactobacillus plantarum* related to medical field. Saudi Journal of Biological Sciences, 23(1): S6–S10.

Ardilla, Y. A., K. W. Anggreini, dan T. P. D. Rahmani 2022. Peran bakteri asam laktat indigen genus *Lactobacillus* pada fermentasi buah durian (*Durio zibethinus*) sebagai bahan pembuatan tempoyak. Berkala Ilmiah Biologi, 13(2): 42–52.

Ayuni, N., N. Hidaayah, dan V. N. R. Pratiwi 2020. Analisis perbedaan waktu fermentasi terhadap kadar probiotik dan aktivitas antioksidan pada minuman probiotik sari buah stroberi (*Fragaria anannassa*). Sport and Nutrition Journal, 2(2): 49-55.

Azizah, N., K. Suradi, dan J. Gumilar 2018. Pengaruh konsentrasi bakteri asam laktat *Lactobacillus plantarum* dan *Lactobacillus casei* terhadap mutu mikrobiologi dan kimia mayonnaise probiotik. Jurnal Ilmu Ternak Universitas Padjadjaran, 18(2): 3.

Badarinath, A., K. Rao, C. S. Chetty, S. Ramkanth, T. Rajan, dan K. Gnanaprakash 2010. A review on in-vitro antioxidant methods: comparisons, correlations, and considerations. International Journal of PharmTech Research, 2(2): 1276–1285.

UNIVERSITAS
GADJAH MADA
**Pengaruh Kepadatan Starter Lactiplantibacillus plantarum GMP1 terhadap Aktivitas Antioksidan Terasi
Udang Rebon Selama Fermentasi**
Nabila Rasyiida Jasmine, Ir. Mgs. Muh.Prima Putra, S.Pi., M.Sc., Ph.D., IPM.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Batubara, P. A. P., D. Desniar, dan I. Setyaningsih 2019. Pengaruh starter bakteri asam laktat probiotik terhadap perubahan kimiawi dan mikrobiologis rusip. Jurnal Teknologi dan Industri Pangan, 30(1): 28–35.

Bradford, M. M. 1976. Rapid and sensitive method for quantitation of microgram quantities of protein utilizing principle of protein-dye binding. Analytical Biochemistry, 72: 248–254.

Bu, Y., Y. Liu, H. Luan, W. Zhu, X. Li, dan J. Li 2022. Changes in protease activity during fermentation of fish sauce and their correlation with antioxidant activity. Journal of the Science of Food and Agriculture, 102(8): 3150–3159.

Çabuk, B., A. K. Stone, D. R. Korber, T. Tanaka, dan M. T. Nickerson 2018. Effect of *Lactobacillus plantarum* fermentation on the surface and functional properties of pea protein-enriched flour. Food Technology and Biotechnology, 56(3): 411–420.

Cao, C. C., M. Q. Feng, J. Sun, X. L. Xu, dan G. H. Zhou 2019. Screening of lactic acid bacteria with high protease activity from fermented sausages and antioxidant activity assessment of its fermented sausages. CyTA-Journal of Food, 17(1): 347-354.

Capozzi, V., M. Fragasso, R. Romaniello, C. Berbegal, P. Russo, dan G. Spano 2017. Spontaneous food fermentations and potential risks for human health. Fermentation, 3(4): 49.

Chai, K. F., A. Y. H. Voo, dan W. N. Chen 2020. Bioactive peptides from food fermentation: a comprehensive review of their sources, bioactivities, applications, and future development. Comprehensive Reviews in Food Science and Food Safety, 19(6): 3825–3885.

Cian, R. E., dan Drago, S. R. 2023. Microbial Bioactive Peptides. Handbook of Food Bioactive Ingredients: 941.

Cruz-Casas, D. E., C. N. Aguilar, J. A. Ascacio-Valdés, R. Rodríguez-Herrera, M. L. Chávez-González, dan A. C. Flores-Gallegos 2021. Enzymatic hydrolysis and microbial fermentation: the most favorable biotechnological methods for the release of bioactive peptides. Food Chemistry: Molecular Sciences, 3: 100047.

Das, A., S. Biswas, K. Satyaprakash, D. Bhattacharya, P. K. Nanda, G. Patra, dan A. K. Das 2024. Ratanjot (*Alkanna tinctoria* L.) root extract, rich in antioxidants, exhibits strong antimicrobial activity against foodborne pathogens and is a potential food preservative. Foods, 13(14): 2254.

Dontha, S. 2016. A review on antioxidant methods. Asian Journal of Pharmaceutical and Clinical Research, 9(2): 14–32.

Fabbri, P. L., A. Cavallero, F. Vidotto, dan M. Gabriele 2024. Bioactive peptides from fermented foods: production approaches, sources, and potential health benefits. Foods, 13(21): 3369.

UNIVERSITAS
GADJAH MADA
**Pengaruh Kepadatan Starter Lactiplantibacillus plantarum GMP1 terhadap Aktivitas Antioksidan Terasi
Udang Rebon Selama Fermentasi**
Nabila Rasyiida Jasmine, Ir. Mgs. Muh.Prima Putra, S.Pi., M.Sc., Ph.D., IPM.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Fahmi, A., S. Syukur, Z. Chaidir, dan S. Melia 2022. Isolasi dan karakterisasi bakteri asam laktat dari teh hijau fermentasi. Lumbung Farmasi: Jurnal Ilmu Kefarmasian, 3(2): 325–330.

Faithong, N., dan Benjakul, S. 2014. Changes in antioxidant activities and physicochemical properties of kapi, a fermented shrimp paste, during fermentation. Journal of Food Science and Technology, 51(10): 2463–2471.

Faithong, N., S. Benjakul, S. Phatcharat, dan W. Binsan 2010. Chemical composition and antioxidative activity of thai traditional fermented shrimp and krill products. Food Chemistry, 119(1): 133–140.

Fitrah, A. 2026. Pengaruh Kepadatan Starter *Lactiplantibacillus plantarum* GMP1 terhadap Mutu Mikrobiologis dan Kadar Histamin Terasi Udang Rebon. Fakultas Pertanian. Universitas Gadjah Mada.

Helmi, H., D. I. Astuti, S. P. Putri, A. Sato, W. A. Laviña, E. Fukusaki, dan P. Aditiawati 2022. Dynamic changes in the bacterial community and metabolic profile during fermentation of low-salt shrimp paste (terasi). Metabolites, 12(2): 118.

Herlina, V. T., dan Setiarto, R. H. B. 2024. Terasi, exploring the indonesian ethnic fermented shrimp paste. Journal of Ethnic Foods, 11(1): 7.

Hidayatulloh, A., J. Gumilar, dan E. Harlia 2019. Potensi senyawa metabolit yang dihasilkan *Lactobacillus plantarum* ATCC 8014 sebagai bahan biopreservasi dan antibakteri pada bahan pangan asal hewan. JITP, 7(2): 1–6.

Husni, A., N. Izmi, F. Z. Ayunani, A. Kartini, N. Husnayain, dan A. Isnansetyo 2022. Characteristics and antioxidant activity of fucoidan from *sargassum hystrix*: effect of extraction method. International Journal of Food Science, 2022(1): 3689724.

Indriani, S., N. Srisakultiew, S. Benjakul, P. Boonchuen, K. Petsong, dan J. Pongsetkul 2024. The impact of hot-air oven drying combined with *Bacillus subtilis* KC3 inoculation on quality characteristics and microbial profiles of salted shrimp paste. International Journal of Food Microbiology, 425: 110867.

Irianto, I. H. E. 2012. Produk Fermentasi Ikan. Penebar Swadaya Grup, Jakarta.

Ismail, I., F. Mubarak, R. I. Rasyak, R. Rusli, F. Fitriana, dan H. M. I. Mashar 2023. Isolasi dan uji aktivitas bakteri asam laktat dari produk fermentasi kombucha teh dalam menghambat bakteri *Escherichia coli*, *Staphylococcus aureus*, dan *Salmonella thypi*. Jurnal Mandala Pharmacon Indonesia, 9(2): 335–344.

Jiang, Y., L. Zhang, Y. Jin, H. Xu, Y. Liang, Z. Xia, C. Zhang, C. Guan, H. Qu, Y. Wa, W. Wang, Y. Huang, R. Gu, dan D. Chen 2024. *Lactiplantibacillus plantarum* for the preparation of fermented low-bitter enzymatic skim milk with antioxidant ability. Foods, 13(23): 3828.

UNIVERSITAS
GADJAH MADA
**Pengaruh Kepadatan Starter Lactiplantibacillus plantarum GMP1 terhadap Aktivitas Antioksidan Terasi
Udang Rebon Selama Fermentasi**
Nabila Rasyiida Jasmine, Ir. Mgs. Muh.Prima Putra, S.Pi., M.Sc., Ph.D., IPM.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Juniato, J., M. P. Azzahra, M. H. Asidiq, N. P. Indallah, A. Putri, J., M. N. B., L. F. Adhim, dan Z. P. Kharima 2022. Terasi (shrimp paste) article review. Global Scientific Journal, 10(4): 2408–2415.

Kachouri, F., H. Ksontini, M. Kraiem, K. Setti, M. Mechmeche, dan M. Hamdi 2015. Involvement of antioxidant activity of *Lactobacillus plantarum* on functional properties of olive phenolic compounds. Journal of Food Science and Technology, 52(12): 7924–7933.

Karim, F. A., F. Swastawati, dan A. D. Anggo 2014. Pengaruh perbedaan bahan baku terhadap kandungan asam glutamat pada terasi. Jurnal Pengolahan dan Bioteknologi Hasil Perikanan, 3(4): 51–58.

Khoiriyah, I., dan Wikandari, P. R. 2023. Potensi minuman sari kulit singkong fermentasi dengan kultur starter *Lactobacillus plantarum* B1765 sebagai antioksidan. Unesa Journal of Chemistry, 12(3): 120–128.

Kitessa, D. A. 2024. Review on effect of fermentation on physicochemical properties, anti-nutritional factors and sensory properties of cereal-based fermented foods and beverages. Annals of Microbiology, 74(1): 32.

Kleekayai, T., D. Saetae, O. Wattanachaiyingyong, S. Tachibana, M. Yasuda, dan W. Suntornsuk 2015. Characterization and in vitro biological activities of thai traditional fermented shrimp pastes. Journal of Food Science and Technology, 52(3): 1839–1848.

Kleekayai, T., P. A. Harnedy, M. B. O'Keeffe, A. A. Poyarkov, A. Cunha Neves, W. Suntornsuk, dan R. J. FitzGerald 2015. Extraction of antioxidant and ace inhibitory peptides from thai traditional fermented shrimp pastes. Food Chemistry, 176: 441–447.

Kuo, H. C., H. K. Kwong, H. Y. Chen, H. Y. Hsu, S. H. Yu, C. W. Hsieh, H. W. Lin, Y. L. Chu, dan K. C. Cheng 2021. Enhanced antioxidant activity of chenopodium formosanum koidz. by lactic acid bacteria: optimization of fermentation conditions. PLoS One, 16(5): e0249250.

Kurniadi, M., M. F. Arsyad, A. M. Sari, R. Nurhayati, dan T. Wiyono 2019. The effect of fermentation duration and starter concentration on physicochemical properties of modified sorghum flour by *Lactobacillus plantarum* FNCC 0027. Food Research, 3(5), 441-447.

Kurnianto, M. A., S. I. Adirama, W. Xu, S. Winarti, dan D. M. Rini 2025. enhancing the quality of traditional indonesian shrimp paste (terasi) through *Tetragenococcus halophilus* 54M106-3 inoculation: physicochemical, sensory, and bioactivity insights. Foods, 14(14): 2419.

Liu, A., X. Yan, H. Shang, C. Ji, S. Zhang, H. Liang, Y. Chen, dan X. Lin 2022. Screening of *Lactiplantibacillus plantarum* with high stress tolerance and high esterase

UNIVERSITAS
GADJAH MADA
**Pengaruh Kepadatan Starter Lactiplantibacillus plantarum GMP1 terhadap Aktivitas Antioksidan Terasi
Udang Rebon Selama Fermentasi**
Nabila Rasyiida Jasmine, Ir. Mgs. Muh.Prima Putra, S.Pi., M.Sc., Ph.D., IPM.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

activity and their effect on promoting protein metabolism and flavor formation in suanzhayu, a chinese fermented fish. Foods, 11(13): 1932.

López-García, G., O. Dublan-García, D. Arizmendi-Cotero, dan L. M. Gómez Oliván 2022. Antioxidant and antimicrobial peptides derived from food proteins. Molecules, 27(4): 1343.

Luhulima, C. F., F. Rieuwpassa, dan M. L. Wattimena 2024. Pemanfaatan tetelan ikan tuna (*Thunnus* sp.) dalam pembuatan kecap ikan dengan penambahan enzim dan yoghurt. INASUA: Jurnal Teknologi Hasil Perikanan, 4(1): 15–24.

Maesaroh, K., D. Kurnia, dan J. Al Anshori 2018. Perbandingan metode uji aktivitas antioksidan DPPH, FRAP dan FIC terhadap asam askorbat, asam galat dan kuersetin. Chimica et Natura Acta, 6(2): 93–100.

Martini, S., L. Solieri, dan D. Tagliazucchi 2021. Peptidomics: new trends in food science. Current Opinion in Food Science, 39: 51–59.

Martí-Quijal, F. J., A. Tornos, A. Príncep, C. Luz, G. Meca, P. Tedeschi, M. Ruiz-J., dan F. J. Barba 2020. Impact of fermentation on the recovery of antioxidant bioactive compounds from sea bass byproducts. Antioxidants, 9(3): 239.

Mauludia, M., T. Usman, W. Rahmalia, D. Imam Prayitno, dan S. Nani Nurbaeti 2021. Ekstraksi, karakterisasi dan uji aktivitas antioksidan astaxanthin dari produk fermentasi udang (cincalok). Jurnal Kelautan Tropis, 24(3): 311–322.

Mirzaei, M., S. Mirdamadi, M. Safavi, dan N. Soleymanzadeh 2020. The stability of antioxidant and ace-inhibitory peptides as influenced by peptide sequences. LWT, 130: 109710.

Mokoena, M. P. 2017. Lactic acid bacteria and their bacteriocins: classification, biosynthesis and applications against uropathogens: a mini-review. Molecules, 22(8): 1255.

Munteanu, I. G., dan Apetrei, C. 2021. Analytical methods used in determining antioxidant activity: a review. International Journal of Molecular Sciences, 22(7): 3380.

Najafian, L., dan Babji, A. S. 2018. Fractionation and identification of novel antioxidant peptides from fermented fish (pekasam). Journal of Food Measurement and Characterization, 12(3): 2174–2183.

Nandini, A., S. D. Nurherdiana, D. Nagarajan, dan J. Shu-Chang 2021. Skrining bakteri *Lactobacillus* dan *Weissella* untuk produksi asam laktat dengan metode fermentasi batch. Akta Kimindo, 6(2): 127–135.

Nicklisch, S. C. T., dan Waite, J. H. 2014. Optimized DPPH assay in a detergent-based buffer system for measuring antioxidant activity of proteins. MethodsX, 1: 233–238.

UNIVERSITAS
GADJAH MADA
Pengaruh Kepadatan Starter Lactiplantibacillus plantarum GMP1 terhadap Aktivitas Antioksidan Terasi Udang Rebon Selama Fermentasi
Nabila Rasyiida Jasmine, Ir. Mgs. Muh.Prima Putra, S.Pi., M.Sc., Ph.D., IPM.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Novitasari, D. P., L. Rianingsih, dan R. A. Kurniasih 2023. Pengaruh perbedaan jenis gula terhadap aktivitas antioksidan terasi udang rebon (*Acetes* sp.). Saintek Perikanan: Indonesian Journal of Fisheries Science and Technology, 19(2): 97-102.

Nuñal, S. N., C. M. C. Florece, dan M. A. Treyes 2016. Antagonistic activities against foodborne pathogens and use as functional starter culture of bacterial strains isolated from fermented shrimp paste. Philippine Journal of Natural Sciences, 21: 26–36.

Omar, W. H., dan Sarbon, N. M. 2016. Effect of drying method on functional properties and antioxidant activities of chicken skin gelatin hydrolysate. Journal of Food Science and Technology, 53(11): 3928–3938.

Pajrin, A. D., G. P. Pambudi, M. T. Mandira, N. Wulan, T. Pebrianti, dan D. R. Hapsari 2025. Potensi hidrolisat protein susu kambing sebagai sumber peptida bioaktif dengan efek antihipertensi. Karimah Tauhid, 4(1): 233–246.

Peralta, E. M., dan Serrano Jr, A. E. 2014. Activity of naturally occurring antioxidants during heat processing of low-salt fermented shrimp paste. Animal Biology & Animal Husbandry, 6(1): 27–33.

Polak-Berecka, M., A. Kubik-Komar, K. Gustaw, M. Michalak, W. Kazimierczak, dan Waśko, A. 2018. Functional traits of *Lactobacillus plantarum* from fermented *Brassica oleracea* var. *capitata* L. in view of multivariate statistical analysis. European Food Research and Technology, 244(10): 1719–1727.

Purwandari, U., D. Hidayati, A. Rahman, dan D. Pujimulyani 2025. Pangan Fermentasi Nabati: Proses dan Manfaatnya bagi Kesehatan. Azzia Karya Bersama.

Purwaningtyas, A. V., dan M. I. Barliana 2021. Efek angiotensin converting enzyme inhibitor (acei) dan angiotensin receptor blocker (arb) sebagai kardioprotektor terhadap cardiovascular events. Farmaka, 19(4): 76-87.

Qiao, Z., W. Zhao, Z. Rong, Y. Wang, X. Ma, Y. Ma, Y. Liu, dan J. Liu 2025. *Lactiplantibacillus plantarum* h32: A bifunctional starter culture that effectively degrades nitrite and enhances flavor in kimchi fermentation. Journal of Biotech Research, 22: 317–326.

Rahayu, H. M., M. Qurbaniah, dan L. Lostari 2025. Inovasi produk: pelatihan diversifikasi olahan makanan berbasis fermentasi di institut kemahiran islam malaysia sarawak. ABSYARA: Jurnal Pengabdian Pada Masyarakat, 6(1): 45–51.

Rashid, N. Y. A., M. A. Manan, K. F. Pa'ee, N. Saari, dan F. W. F. Wong 2022. Evaluation of antioxidant and antibacterial activities of fish protein hydrolysate produced from Malaysian fish sausage (keropok lekor) by-products by indigenous lactobacillus casei fermentation. Journal of Cleaner Production, 347: 131303.

Reinmuth-Selzle, K., T. Tchipilov, A. T. Backes, G. Tscheuschner, K. Tang, K. Ziegler, K. Lucas, U. Pöschl, J. Fröhlich-Nowoisky, dan M. G. Weller 2022. Determination of the protein content of complex samples by aromatic amino acid analysis, liquid

UNIVERSITAS
GADJAH MADA
**Pengaruh Kepadatan Starter Lactiplantibacillus plantarum GMP1 terhadap Aktivitas Antioksidan Terasi
Udang Rebon Selama Fermentasi**
Nabila Rasyiida Jasmine, Ir. Mgs. Muh.Prima Putra, S.Pi., M.Sc., Ph.D., IPM.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

chromatography-uv absorbance, and colorimetry. Analytical and Bioanalytical Chemistry, 414(15): 4457–4470.

Riyadi, P. H. 2018. Peptida bioaktif untuk penurunan tekanan darah dari hidrolisa limbah perikanan: kajian pustaka. Jurnal Pengolahan dan Bioteknologi Hasil Perikanan, 7(1): 1–6.

Rosida, dan Susiloningsih, E. K. B. 2007. Pengaruh konsentrasi starter *Lactobacillus Plantarum* dan lama fermentasi terhadap kualitas dan kerusakan produk terasi. Jurnal PROTEIN, 15(2): 72–76.

Said, M. I., E. Abustam, F. N. Yuliati, H. Hasma, dan A. Alvina 2020. Potential use of *Lactobacillus plantarum* 1UHCC as a bio-hydrolyzer in the development of the sustainable food industry in indonesia. European Journal of Sustainable Development, 9(2): 532.

Samurailatpam, S., R. Kumari, D. Sahoo, dan A. K. Rai 2021. Bioactive peptides in fermented food products: production and functionality. Bioactive Compounds in Fermented Foods: 95–119. CRC Press.

Sari, L. B., dan Mustakim, A. 2025. Isolasi dan indentifikasi bakteri asam laktat dari tempoyak sebagai produk fermentasi tradisional. Menulis: Jurnal Penelitian Nusantara, 1(8): 509–513.

Setiarto, R. H. B. 2020. Teknologi Fermentasi Pangan Tradisional dan Produk Olahannya. Guepedia, Bogor.

Simamora, I. Y., S. Winarti, dan Y. A. Sanjaya 2024. Karakteristik terasi nabati berbahan dasar kedelai menggunakan kultur campuran *Lactobacillus plantarum* FNCC 1012 dan *Bacillus amyloliquefaciens* FNCC 0079. Jurnal Sains dan Teknologi Pangan, 9(6): 7950–7964.

Sitorus, A., D. Devianti, dan R. Bulan 2021. A review on the engineering properties of soybean to support the tofu agro-industrial machinery development and important highlights. Agrointek: Jurnal Teknologi Industri Pertanian, 15(3): 921–931.

Śmietana, N., Śmietana, P., Drozłowska, E., dan Łopusiewicz, Ł. 2023. The influence of lactic acid bacteria fermentation on the bioactivity of crayfish (*Faxonius limosus*) meat. Fermentation, 9(1): 66.

Sowmya, R., dan Sachindra, N. M. 2012. Evaluation of antioxidant activity of carotenoid extract from shrimp processing byproducts by in vitro assays and in membrane model system. Food Chemistry, 134(1): 308-314.

Starzyńska-Janiszewska, A., B. Stodolak, dan A. Wikiera 2015. Proteolysis in tempeh-type products obtained with *Rhizopus and Aspergillus* strains from grass pea (*Lathyrus sativus*) seeds. Acta Scientiarum Polonorum Technologia Alimentaria, 14(2): 125–132.

UNIVERSITAS
GADJAH MADA
**Pengaruh Kepadatan Starter Lactiplantibacillus plantarum GMP1 terhadap Aktivitas Antioksidan Terasi
Udang Rebon Selama Fermentasi**
Nabila Rasyiida Jasmine, Ir. Mgs. Muh.Prima Putra, S.Pi., M.Sc., Ph.D., IPM.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Sumardianto, P. H. Riyadi, A. D. Anggo, Romadhon, dan L. Rianingsih 2021. Phenol content and antioxidant activity in seaweed fermented with lactic acid bacteria. Food Research, 5(Suppl. 3): 7–13.

Sunarti, W. A., dan Afgani, C. A. 2024. Efektivitas penambahan konsentrasi garam terhadap mutu mikrobiologi pada terasi Sumbawa. Jurnal Inovasi Teknologi Pangan, 1(2): 1–7.

Surya, R., D. Nugroho, N. Kamal, dan F. Tedjakusuma 2023. Effects of fermentation time on chemical, microbiological, antioxidant, and organoleptic properties of indonesian traditional shrimp paste, terasi. International Journal of Gastronomy and Food Science, 31: 100643.

Susanty, A. 2021. Pengaruh waktu hidrolisis terhadap karakteristik hidrolisat protein ikan toman (*Channa micropeltes*) asal DAS Kalimantan Timur. Indonesian Journal of Industrial Research, 15(2): 463–475.

Tadesse, S. A., dan Emire, S. A. 2020. Production and processing of antioxidant bioactive peptides: a driving force for the functional food market. Heliyon, 6(8): e04765.

Theafelicia, Z., dan Wulan, S. N. 2023. Perbandingan berbagai metode pengujian aktivitas antioksidan (DPPH, ABTS dan FRAP) pada teh hitam (*Camellia sinensis*). Jurnal Teknologi Pertanian, 24(1): 35–44.

Utomo, G. S. M., S. Hidanah, M. A. Al Arif, W. P. Lokapirnasari, dan W. M. Yuniarti 2022. Business analysis of probiotic administration of lactic acid bacteria on the performance of kampung super chicken. Jurnal Medik Veteriner, 5(1): 87–93.

Vogelsang-O'Dwyer, M., A. W. Sahin, E. K. Arendt, dan E. Zannini 2022. Enzymatic hydrolysis of pulse proteins as a tool to improve techno-functional properties. Foods, 11(9): 1307.

Wahdayani, E., R. Fadilah, dan Lahming. 2021. Pengaruh lama fermentasi dan perbedaan suhu pengeringan terhadap mutu terasi bubuk udang rebon (*Acetes* sp.). Jurnal Pendidikan Teknologi Pertanian, 7(2): 167–176.

Wang, Y., J. Han, D. Wang, F. Gao, K. Zhang, J. Tian, dan Y. Jin 2022. Research update on the impact of lactic acid bacteria on the substance metabolism, flavor, and quality characteristics of fermented meat products. Foods, 11(14): 2090.

Werdhasari, A. 2014. Peran antioksidan bagi kesehatan. Jurnal Biotek Medisiana Indonesia, 3(2): 59–68.

Wong, C. C., H. B. Li, K. W. Cheng, dan F. Chen 2006. A systematic survey of antioxidant activity of 30 chinese medicinal plants using the ferric reducing antioxidant power assay. Food Chemistry, 97(4): 705–711.

Xu, B., Q. Dong, C. Yu, H. Chen, Y. Zhao, B. Zhang, P. Yu, dan M. Chen 2024. Advances in research on the activity evaluation, mechanism and structure-activity relationships of natural antioxidant peptides. Antioxidants, 13(4): 479.

UNIVERSITAS
GADJAH MADA
**Pengaruh Kepadatan Starter Lactiplantibacillus plantarum GMP1 terhadap Aktivitas Antioksidan Terasi
Udang Rebon Selama Fermentasi**
Nabila Rasyiida Jasmine, Ir. Mgs. Muh.Prima Putra, S.Pi., M.Sc., Ph.D., IPM.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Yani, I. E., M. Handayani, dan H. Husna 2022. Kadar protein dan daya terima mi padat gizi berbasis pangan lokal sebagai alternatif pangan darurat. Jurnal Sehat Mandiri, 17(2): 1–9.

Yu, D., M. Q. Feng, dan J. Sun 2021. Influence of mixed starters on the degradation of proteins and the formation of peptides with antioxidant activities in dry fermented sausages. Food Control, 123: 107743.

Yu, J., K. Lu, J. Zi, X. Yang, Z. Zheng, dan W. Xie 2022. Halophilic bacteria as starter cultures: a new strategy to accelerate fermentation and enhance flavor of shrimp paste. Food Chemistry, 393: 133393.

Yuan, L., Q. Zhang, F. Zhao, W. Jin, T. Shi, Z. Xiong, dan R. Gao 2023. Dynamic changes and correlation analysis of protease activities, texture and flavour compounds during fish fermentation (suanyu) using mixed culture (*Enterococcus rivorum* and *Enterococcus lactis*). International Journal of Food Science and Technology, 58(5): 2312–2324.

Zhang, Y., M. Ishikawa, S. Koshio, S. Yokoyama, S. Dossou, W. Wang, Y. Li, dan S. Seo 2021. Optimization of soybean meal fermentation for aqua-feed with *bacillus subtilis* natto using the response surface methodology. Fermentation, 7(4): 306.

Zhao, D., Y. Chong, J. Hu, X. Zhou, C. Xiao, dan W. Chen 2022. Proteomics and metagenomics reveal the relationship between microbial metabolism and protein hydrolysis in dried fermented grass carp using a lactic acid bacteria starter culture. Current Research in Food Science, 5: 2316–2328.

Zubaidah, E., M. S. Arum, T. D. Widyaningsih, dan A. P. Rahayu 2020. Sauerkraut with the addition of *Lactobacillus casei*: effects of salt and sugar concentrations on fermentation and antioxidant activity. Current Nutrition & Food Science, 16(8): 1265-1269.

Zummah, A., dan Wikandari, P. R. 2013. Pengaruh waktu fermentasi dan penambahan kultur starter bakteri asam laktat *Lactobacillus plantarum* B1765 terhadap mutu bekasam ikan bandeng (*Chanos chanos*). UNESA Journal of Chemistry, 2(3).