

DAFTAR PUSTAKA

- Alfonso, F. C., Vigueras-Ramírez, G., Rosales-Colunga, L. M., del Monte-Martinez, A., & Hernández, R. O. (2021). Propionate as the preferred carbon source to produce 3-indoleacetic acid in *B. subtilis*: comparative flux analysis using five carbon sources. *Royal Society of Chemistry*. doi: 10.1039/d1mo00039j
- Al-Tubuly, A. A. SDS-PAGE and western blotting. *Methods in Molecular Medicine*, 40, 391–405. doi:10.1385/1-59259-076-4:391
- Altaf, F., Wu, S., & Kasim, V. (2021). Role of Fibrinolytic Enzymes in Anti-Thrombosis Therapy. Retrieved from <https://www.frontiersin.org/articles/10.3389/fmolb.2021.680397/full#B93>
- ¹Austin Community College. (2022). Citrate Test. Retrieved from https://www.austintcc.edu/microbugz/citrate_test.php
- ²Austin Community College. (2022). Endospore Stain. Retrieved from https://www.austintcc.edu/microbugz/endospore_stain.php
- ³Austin Community College. (2022). 6.5% NaCl Broth Salt Tolerance Test. Retrieved from <https://www.austintcc.edu/microbugz/handouts/Salt%20Tolerance.pdf>
- Breed, R. S., Murray, E. G. D., & Smith, N. R. (1957). *Bergey's Manual of Determinative Bacteriology Seventh Edition*. United States: The Williams & Wilkins Company.
- Centers for Disease Control and Prevention. (2021). *Venous Thromboembolism (Blood Clots)*. Retrieved from <https://www.cdc.gov/ncbddd/dvt/facts.html>
- Chakrabarti, R., Bielawiec, M., Evans, J. F., & Fearnley, G. R. (1968). Methodological study and a recommended technique for determining the euglobulin lysis time. *Journal of Clinical Pathology*, 21, 698-701.
- Chandler, W. L. (2019). Laboratory Techniques in Fibrinolysis Testing. In B. H. Shaz, C. D. Hillyer, & M. R. Gil, *Transfusion Medicine and Hemostasis: Clinical and Laboratory Aspects, Third Edition*. New York: Elsevier Science. pp 865-868
- Cherubini, A., Carrieri, B., & Marinelli, P. (2018). Advantages and disadvantages of direct oral anticoagulants in older patients. *Geriatric Care*, 4(1). doi:10.4081/gc.2018.7227
- Contesini, F. J., Melo, R. R. de, & Sato, H. H. (2017). An overview of *Bacillus* proteases: from production to application. *Critical Reviews in Biotechnology*, 38(3), 321–334. doi:10.1080/07388551.2017.1354354
- Del Rio De Rays, M. T. E., Constantinides, S. M., Sgarbieri, V. C., & El-Dash, A. A. (1980). Chicken blood plasma proteins: physicochemical, nutritional and functional properties. *Journal of Food Science*, 45(1), 17-20. doi:10.1111/j.1365-2621.1980.tb03860.x

- del Zoppo, G. J. (2016). Mechanisms of Thrombosis and Thrombolysis. In J. Grotta, G. Albers, J. Broderick, S. Kasner, E. Lo, R. Sacco, & L. Wong, *Stroke: Pathophysiology, Diagnosis, and Management*. Philadelphia: Elsevier. pp. 13-27.
- Edwards, Z., & Nagalli, S. (2021). *Streptokinase*. Treasure Island (FL): StatPearls Publishing.
- Ellis, V. (2007). u-Plasminogen Activator. In D. B. Bylund & S. J. Enna, *xPharm: The Comprehensive Pharmacology Reference*. New York: Elsevier. pp. 1-10.
- Elnager, A., Abdullah, W. Z., Hassan, R., Idris, Z., Arfah, N. W., Sulaiman, S. A., & Mustafa, Z. (2014). In vitro whole blood clot lysis for fibrinolytic activity study using D-dimer and confocal microscopy. *Advances in Hematology*, 2014, 1-8. doi:10.1155/2014/814684
- Errington, J., & van der Aart, L. T. (2020). Microbe profile: *Bacillus subtilis*: model organism for cellular development, and industrial workhorse. *Microbiology*, 166(5), 425-427. doi: 10.1099/mic.0.000922
- Frias, J., Toubarro, D., Fraga, A., Botelho, C., Teixera, J., Pedrosa, J., & Simoes, N. (2021). Purification and characterization of a thrombolytic enzyme produced by a new strain of *Bacillus subtilis*. *Journal of Microbiology and Biotechnology*, 31(2): 327-337. doi: 10.4014/jmb.2008.08010
- Giannotta, M., Tapete, G., Emmi, G., Silvestri, E., & Milla, M. (2015). Thrombosis in inflammatory bowel diseases: what's the link?. *Thrombosis Journal*, 13(14). doi: 10.1186/s12959-015-0044-2
- Grutsch, A. A., Nimmer, P. S., Pittsley, R. H., & McKillip, J. L. (2018). *Bacillus* spp. as Pathogens in the Dairy Industry. In A. M. Holban, & A. M. Grumezescu, *Foodborne Diseases*. United States: Elsevier. pp. 193-195.
- Hsi, E. D. (2018). *Hematopathology (Third Edition)*. Philadelphia: Elsevier.
- Hu, Y., Yu, D., Wang, Z., Hou, J., Tyagi, R., Liang, Y., & Hu, Y. (2019). Purification and characterization of a novel, highly potent fibrinolytic enzyme from *Bacillus subtilis* DC27 screened from Douchi, a traditional Chinese fermented soybean food. *Scientific Reports*, 9(9235).
- Ibrahim, S. A. (2016). Lactic acid bacteria: *Lactobacillus* spp.: other species. *Reference Module in Food Science*. doi:10.1016/b978-0-08-100596-5.00857-x
- Kahn, M. B., Palmer, S., Marlar, R. A., & Fink, L. (1990). A modified quantitative whole blood clot lysis method for general laboratory analysis of fibrinolysis. *Thrombosis Research*, 59(1), 171–181. doi:10.1016/0049-3848(90)90282-h
- Koesoemawardani, D., & Ali, M. (2016). Rusip with alginate addition as seasoning. *Jurnal Pengolahan Hasil Perikanan Indonesia*, 19(3). doi: 10.17844/jphpi.v19i3.14549

- Leber, T. M., & Balkwill, F. R. (1997). Zymography: a single-step staining method for quantitation of proteolytic activity on substrate gels. *Analytical Biochemistry*, 249(1), 24–28. doi:10.1006/abio.1997.2170
- Leonard, A. K., Loughran, E. A., Klymenko, Y., Liu, Y., Kim, O., Asem, M., McAbee, K., Ravosa, M. J., & Stack, M. S. (2018). Methods for the Visualization and Analysis of Extracellular Matrix Protein Structure and Degradation. In R. P. Mecham, *Methods in Cell Biology*. Cambridge :Academic Press. p. 91.
- Liu, M., Bayjanov, J. R., Renckens, B., Nauta, A., & Siezen, R. J. (2010). The proteolytic system of lactic acid bacteria revisited: a genomic comparison. *BMC Genomics*, 11(1). doi:10.1186/1471-2164-11-36
- Loof, T. G., Deicke, C., & Medina, E. (2014). The role of coagulation/fibrinolysis during *Streptococcus pyogenes* infection. *Frontiers in Cellular and Infection Microbiology*, 4(128). doi: 10.3389/fcimb.2014.00128
- Lu, Z., Guo, W., & Liu, C. (2018). Isolation, identification and characterization of novel *Bacillus subtilis*. *Journal of Veterinary Medical Science*, 80(3), 427–433. doi:10.1292/jvms.16-0572
- Maia, M. R. G., Marques, S., Cabrita, A. R. J., Wallace, R. J., Thompson, G., Fonseca, A. J. M., & Oliveira, H. M. (2016). Simple and versatile turbidimetric monitoring of bacterial growth in liquid cultures using a customized 3D printed culture tube holder and a miniaturized spectrophotometer: application to facultative and strictly anaerobic bacteria. *Frontiers in Microbiology*, 7. doi:10.3389/fmicb.2016.01381
- Martinez, R. M. (2013). *Bacillus subtilis*. In S. Maloy, & K. Hughes, *Brenner's Encyclopedia of Genetics, Second Edition*. Cambridge: Academic Press. pp. 246-248.
- McDevitt, S. (2009). *Methyl Red and Voges-Proskauer Test Protocols*. Retrieved from <https://asm.org/getattachment/0c828061-9d6f-4ae7-aea3-66e1a8624aa0/Methyl-Red-and-Voges-Proskauer-Test-Protocols.pdf>
- McDonagh, J., Messel, H., McDonagh, R. P., Murano, G., & Blombäck, B. (1972). Molecular weight analysis of fibrinogen and fibrin chains by an improved sodium dodecyl sulfate gel electrophoresis method. *Biochimica et Biophysica Acta (BBA)*, 257(1), 135–142. doi:10.1016/0005-2795(72)90262-0
- McKee, P. A., Mattock, P., & Hill, R. L. (1970). Subunit structure of human fibrinogen, soluble fibrin, and cross-linked insoluble fibrin. *Proceedings of the National Academy of Sciences*, 66(3), 738–744. doi:10.1073/pnas.66.3.738
- Medcalf, R. L., & Keragala, C. B. (2021). The fibrinolytic system: mysteries and opportunities. *HemaSphere*, 5(6), e570. doi: 10.1097/HS9.0000000000000570

- Mehic, D., Pabinger, I., A., C., & Gebhart, J. (2021). Fibrinolysis and bleeding of unknown cause. *Research of Practice in Thrombosis and Haemostasis*, 5(4), e12511. doi: 10.1002/rth2.12511
- Meltzer, M. E., Doggen, C. J. M., de Groot, P. G., Rosendaal, F. R., & Lisman, T. (2009). The impact of the fibrinolytic system on the risk of venous and arterial thrombosis. *Seminars in Thrombosis and Hemostasis*, 35(05), 468–477. doi:10.1055/s-0029-1234142
- Mutch, N. J. (2013). The Role of Platelets in Fibrinolysis. In A. D. Michelson, *Platelets, Third Edition*. Cambridge: Academic Press. pp. 469-485.
- Narzary, Y., Das, S., Goyal, A. K., Lam, S. S., Sarma, H., & Sharma, D. (2021). Fermented fish products in South and Southeast Asian cuisine: indigenous technology processes, nutrient composition, and cultural significance. *Journal of Ethnic Foods*, 8(1), 33. doi: 10.1186/s42779-021-00109-0
- Nowakowski, A. B., Wobig, W. J., & Petering, D. H. (2014). Native SDS-PAGE: high resolution electrophoretic separation of proteins with retention of native properties including bound metal ions. *Metallomics*, 6(5), 1068–1078. doi:10.1039/c4mt00033a
- Pinontoan, R., Elvina, Sanjaya, A., & Jo, J. (2021). Fibrinolytic characteristics of *Bacillus subtilis* G8 isolated from natto. *Bioscience of Microbiota, Food and Health*, 40(3), 144–149. doi: 10.12938/bmfh.2020-071
- Quigley, J. P., Gold, L. I., Schwimmer, R., & Sullivan, L. M. (1987). Limited cleavage of cellular fibronectin by plasminogen activator purified from transformed cells. *Proceedings of the National Academy of Sciences*, 84, 2776-2780.
- Roshal, M. (2013). Laboratory Techniques in Fibrinolysis Testing. In B. H. Shaz, C. D. Hillyer, M. Roshal, & C. S. Abrams. *Transfusion Medicine and Hemostasis (Second Edition)*. New York: Elsevier Science. pp. 881-886.
- Sharma, P., & Noronha, S. (2021). Comparative assessment of factors involved in acetoin synthesis by *Bacillus subtilis* 168. *International Scholarly Research Notices*, 2014, 1-7. doi: 10.1155/2014/578682
- Sharma, C., Osmolovskiy, A., & Singh, R. (2021). Microbial fibrinolytic enzymes as anti-thrombotics: production, characterisation and prodigious biopharmaceutical applications. *Pharmaceutics*. doi: 10.3390/pharmaceutics13111880
- Sizar, O., & Unakal, C. G. (2022). *Gram Positive Bacteria*. Treasure Island (FL): StatPearls Publishing.
- Śliżewska, K., & Chlebicz-Wójcik, A. (2020). Growth kinetics of probiotic *Lactobacillus* strains in the alternative, cost-efficient semi-solid fermentation medium. *Biology*, 9(12). doi:10.3390/biology9120423
- Stephani, L., Tjandrawinata, R. R., Afifah, D. N., Lim, Y., Ismaya, W. T., & Suhartono, M. T. (2017). Food origin fibrinolytic enzyme with multiple

- actions. *HAYATI Journal of Biosciences*, 24(3), 124–130. doi:10.1016/j.hjb.2017.09.003
- Süle, J., Körösi, T., Hücker, A., & Varga, L. (2014). Evaluation of culture media for selective enumeration of bifidobacteria and lactic acid bacteria. *Brazilian Journal of Microbiology*, 45(3), 1023–1030. doi:10.1590/s1517-83822014000300035
- Sutula, J., Coulthwaite, L., & Verran, J. (2012). Culture media for differential isolation of *Lactobacillus casei* Shirota from oral samples. *Journal of Microbiological Methods*, 90(1), 65–71. doi:10.1016/j.mimet.2012.03.015
- Tamura, Y., Okada, K., Kawao, N., Yano, M., Ueshima, S., Nagai, N., & Matsuo, O. (2011). Profibrinolytic effect of Enzamin, an extract of metabolic products from *Bacillus subtilis* AK and *Lactobacillus*. *Journal of Thrombosis and Thrombolysis*, 32(2), 195–200. doi:10.1007/s11239-011-0552-2
- University of Wyoming. (2022). *Starch Hydrolysis Test*. Retrieved from http://www.uwyo.edu/molb2021/additional_info/summ_biochem/starch.html#:~:text=This%20test%20is%20used%20to,the%20genera%20Clostridium%20and%20Bacillus.
- Waller, D. G., & Sampson, A. P. (2018). *Medical Pharmacology and Therapeutics (Fifth Edition)*. London: Elsevier.
- Weng, Y., Yao, J., Sparks, S., & Wang, K. (2017). Nattokinase: an oral antithrombotic agent for the prevention of cardiovascular disease. *International Journal of Molecular Sciences*, 18(3), 523. doi:10.3390/ijms18030523
- World Health Organization. (2021). *Cardiovascular diseases (CVDs)*. Retrieved from [https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-\(cvds\)](https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-(cvds))
- Yao, Z., Kim, J. A., & Kim, J. H. (2017). Properties of a fibrinolytic enzyme secreted by *Bacillus subtilis* JS2 isolated from saeu (small shrimp) jeotgal. *Food Science and Biotechnology*, 27(3), 765–772. doi:10.1007/s10068-017-0299-4
- Yuliana, N., Koesoemawardani, D., Susilawaty, & Kurniati, Y. (2018). Lactic acid bacteria during fish fermentation (rusip). *MOJ Food Processing & Technology*, 6(2): 221-216. doi: 10.15406/mojfpt.2018.06.00167
- Zhang, S., Wang, Y., Zhang, N., Sun, Z., Shi, Y., Cao, X., & Wang, H. (2015). Purification and characterization of a fibrinolytic enzyme from *Rhizopus microsporus* var. *tuberosus*. *Food Technology and Biotechnology*, 53(2): 243–248. doi:10.17113/ftb.53.02.15.3874