

## DAFTAR PUSTAKA

- Alsaheb, R. A. A., Aladdin, A., Othman, N. Z., Malek, R. A., Leng, O. M., Aziz, R., Enshasy, H. A. El, & El, H. A. (2015). Lactic acid applications in pharmaceutical and cosmeceutical industries. *Journal of Chemical and Pharmaceutical Research*, 7(10), 729–735. [www.jocpr.com](http://www.jocpr.com)
- Aries, R. S., & Newton, R. D. (1955). *Chemical engineering cost estimation*. New York: McGraw-Hill.
- Ardestani, F., Rezvani, F., & Najafpour, G. D. (2015). Evaluation of cell growth and substrate consumption kinetic of five different Lactobacilli in a submerged batch whey culture for lactic acid production. *International Journal of Engineering, Transactions A: Basics*, 28(7), 1024–1030. <https://doi.org/10.5829/idosi.ije.2015.28.07a.02>
- Brown, G. G., Foust, A. S., Katz, D. L., Schneidewind, R., White, R. R., Wood, W. P., Brown, G. M., ... York, J. L. (1950). *Unit Operations*. New York: John Wiley & Sons.
- Briefs, S., & Molecular, I. N. (n.d.). *SPRINGER BRIEFS IN MOLECULAR SCIENCE Safety Protocols in the Food Industry and Emerging Concerns*.
- Cao, X., Lee, H. J., Yun, H. S., & Koo, Y. M. (2001). Solubilities of Calcium and Zinc Lactate in Water and Water-Ethanol Mixture. *Korean Journal of Chemical Engineering*, 18(1), 133–135. <https://doi.org/10.1007/bf02707210>
- Chiş, M. S., Pop, A., Păucean, A., Socaci, S. A., Alexa, E., Man, S. M., Bota, M., & Muste, S. (2020). Fatty acids, volatile and sensory profile of multigrain biscuits enriched with spent malt rootles. *Molecules*, 25(3). <https://doi.org/10.3390/molecules25030442>
- Chow, S. H. (1962). *Department of Chemical Engineering Purpose of this Research Effect of Time of Run RECOMMENDATIONS*.
- Dodi Irwanto, W., & and Rochmadi. (2018). *Effect of Alkaloids on Lactic Acid Fermentation from Cocoa Pod Husk using Lactobacillus Plantarum Fermentation from Cocoa Pod Husk using Lactobacillus Plantarum*. 18(1), 51–56.
- Dumbrepatil, A., Adsul, M., Chaudhari, S., Khire, J., & Gokhale, D. (2008). Utilization of molase sugar for lactic acid production by *Lactobacillus delbrueckii* subsp. *delbrueckii* mutant Uc-3 in batch fermentation. *Applied*

---

Ardust Dian Libels Gustaref	(16/400122/TK/45136)
Arnold Lutby Sitohang	(16/400126/TK/45140)
Kevin Chandra Kurniawan	(16/395196/TK/44488)

and *Environmental Microbiology*, 74(1), 333–335.  
<https://doi.org/10.1128/AEM.01595-07>

- Dusselier, M., Van Wouwe, P., Dewaele, A., Makshina, E., & Sels, B. F. (2013). Lactic acid as a platform chemical in the biobased economy: The role of chemocatalysis. *Energy and Environmental Science*, 6(5), 1415–1442.  
<https://doi.org/10.1039/c3ee00069a>
- Edition, S. (n.d.). *HVAC Water Chillers and Cooling Towers Fundamentals, Application, and Operation Second Edition*.
- Erickson, P. S., Murphy, M. R., & Davis, C. L. (1986). Malt Sprouts as a Source of Supplemental Protein for Ruminants. *Journal of Dairy Science*, 69(11), 2959–2962. [https://doi.org/10.3168/jds.S0022-0302\(86\)80752-4](https://doi.org/10.3168/jds.S0022-0302(86)80752-4)
- Eş, I., Mousavi Khaneghah, A., Barba, F. J., Saraiva, J. A., Sant'Ana, A. S., & Hashemi, S. M. B. (2018). Recent advancements in lactic acid production - a review. *Food Research International*, 107(January), 763–770.  
<https://doi.org/10.1016/j.foodres.2018.01.001>
- Geankoplis, C. J. (2018). Transport processes and separation process principles.
- Ghaffar, T., Irshad, M., Anwar, Z., Aqil, T., Zulifqar, Z., Tariq, A., Kamran, M., Ehsan, N., & Mehmood, S. (2014). Recent trends in lactic acid biotechnology: A brief review on production to purification. *Journal of Radiation Research and Applied Sciences*, 7(2), 222–229.  
<https://doi.org/10.1016/j.jrras.2014.03.002>
- Goranov, B., Shopska, V., Denkova, R., & Kostov, G. (2015). Kinetics of Batch Fermentation in the Cultivation of a Probiotic Strain *Lactobacillus Delbrueckii* Ssp. *Bulgaricus* B1. *Acta Universitatis Cibiniensis. Series E: Food Technology*, 19(1), 61–72. <https://doi.org/10.1515/aucft-2015-0006>
- Green, D. W., & Southard, M. Z. (2019). Perry's Chemical Engineers' Handbook.
- Gupta, R., & Garg, V. K. (2017). Vermitechnology for Organic Waste Recycling. In *Current Developments in Biotechnology and Bioengineering: Solid Waste Management*. <https://doi.org/10.1016/B978-0-444-63664-5.00005-8>
- Hamad, K., Kaseem, M., Ayyoob, M., Joo, J., & Deri, F. (2018). Polylactic acid blends: The future of green, light and tough. *Progress in Polymer Science*, 85, 83–127. <https://doi.org/10.1016/j.progpolymsci.2018.07.001>
- Hugot, E., & Jenkins, G. H. (1960). *Handbook of Canesugar Engineering*. 885.

---

Ardust Dian Libels Gustaref	(16/400122/TK/45136)
Arnold Lutby Sitohang	(16/400126/TK/45140)
Kevin Chandra Kurniawan	(16/395196/TK/44488)

- Jagani, N., Jagani, H., Hebbar, K., Gang, S. S., Vasanth Raj, P., Chandrashekhar, R. H., & Rao, Jv. (2010). An Overview of Fermenter and the Design Considerations to Enhance Its Productivity. *Pharmacologyonline*, 1, 261–301.
- Karthikeyan, G., Palanisamy, A., & Viknesh, M. R. (2018). *Milk clotting and proteolytic activity of protease enzyme from Lactobacillus delbrueckii isolated from raw goat milk*. 1(1).
- Kobe, K. A. (1956). Chemical engineering cost estimation. In *Journal of Chemical Education* (Vol. 33, Issue 4, p. 194).  
<https://doi.org/10.1021/ed033p194.1>
- Komesu, A., de Oliveira, J. A. R., Martins, L. H. da S., Maciel, M. R. W., & Filho, R. M. (2017). Lactic acid production to purification: A review. *BioResources*, 12(2), 4364–4383. <https://doi.org/10.15376/biores.12.2.4364-4383>
- Komesu, A., Martins Martinez, P. F., Lunelli, B. H., Oliveira, J., Wolf Maciel, M. R., & Maciel Filho, R. (2017). Study of lactic acid thermal behavior using thermoanalytical techniques. *Journal of Chemistry*, 2017.  
<https://doi.org/10.1155/2017/4149592>
- Komesu, A., Martins, P. F., Lunelli, B. H., Morita, A. T., De Coutinho, P. L. A., Filho, R. M., & Maciel, M. R. W. (2013). Lactic acid purification by hybrid short path evaporation. *Chemical Engineering Transactions*, 32, 2017–2022.  
<https://doi.org/10.3303/CET1332337>
- Komesu, A., Martins, P. F., Lunelli, B. H., Oliveira, J., Maciel Filho, R., & Wolf Maciel, M. R. (2014). Evaluation of lactic acid purification from fermentation broth by hybrid short path evaporation using factorial experimental design. *Separation and Purification Technology*, 136, 233–240.  
<https://doi.org/10.1016/j.seppur.2014.09.010>
- Komesu, A., Oliveira, J., Martins, L. H. S., Filho, R. M., & Maciel, M. R. W. (2018). Effect of operating conditions and split ratio for lactic acid purification by short path evaporation system. *Chemical Engineering Transactions*, 69, 601–606. <https://doi.org/10.3303/CET1869101>
- Kubantseva, N., Hartel, R. W., & Swearingen, P. A. (2004). Factors affecting solubility of calcium lactate in aqueous solutions. *Journal of Dairy Science*, 87(4), 863–867. [https://doi.org/10.3168/jds.S0022-0302\(04\)73230-0](https://doi.org/10.3168/jds.S0022-0302(04)73230-0)

---

Ardust Dian Libels Gustaref	(16/400122/TK/45136)
Arnold Lutby Sitohang	(16/400126/TK/45140)
Kevin Chandra Kurniawan	(16/395196/TK/44488)

- Lin, H.-T. V., Huang, M.-Y., Kao, T.-Y., Lu, W.-J., Lin, H.-J., & Pan, C.-L. (2020). Production of Lactic Acid from Seaweed Hydrolysates via Lactic Acid Bacteria Fermentation. *Fermentation*, 6(1), 37. <https://doi.org/10.3390/fermentation6010037>
- Mann, J. (1980). Transport processes and unit operations. In *The Chemical Engineering Journal* (Vol. 20, Issue 1, p. 82). [https://doi.org/10.1016/0300-9467\(80\)85013-1](https://doi.org/10.1016/0300-9467(80)85013-1)
- Miller, C., Fosmer, A., Rush, B., McMullin, T., Beacom, D., & Suominen, P. (2011). Industrial Production of Lactic Acid. In *Comprehensive Biotechnology, Second Edition* (Second Edi, Vol. 3). Elsevier B.V. <https://doi.org/10.1016/B978-0-08-088504-9.00177-X>
- Miller, C., Fosmer, A., Rush, B., McMullin, T., Beacom, D., & Suominen, P. (2019). Industrial production of lactic acid. *Comprehensive Biotechnology, January*, 208–217. <https://doi.org/10.1016/B978-0-12-809633-8.09142-1>
- Musyafa, A., & Adiyagsa, H. (2012). Hazard and Operability study in Boiler System of The Steam Power Plant. *IEESE International Journal of Science and Technology (IJSTE)*, 1(3), 1–10.
- Nurjannah, L., Suryani, S., Achmadi, S. S., & Azhari, A. (2017). Produksi Asam Laktat oleh *Lactobacillus delbrueckii* subsp. *bulgaricus* dengan Sumber Karbon Tetes Tebu. *Jurnal Teknologi Dan Industri Pertanian Indonesia*, 9(1), 1–9. <https://doi.org/10.17969/jtipi.v9i1.5903>
- Oka Kenichiro, Matsuo Toshiaki, Kamikawa Masayuki, Okamoto Naruyasu, K. T. (2013). *Manufacturing process of purified lactic acid*.
- Online, V. A., Kelnar, I., & Zhigunov, A. (2016). *Structure and Properties of Poly ( Lactic Acid )/*.
- Philippine Statistics Authority. (2015). Foreign Trade Statistics of the Philippines: 2015. *Psa.Gov.Gh*, 5–11. [psa.gov.ph/content/foreign-trade-statistics-philippines-2015](http://psa.gov.ph/content/foreign-trade-statistics-philippines-2015)
- Rivero, C. P., Hu, Y., Kwan, T. H., Webb, C., Theodoropoulos, C., Daoud, W., & Lin, C. S. K. (2017). Food and beverages industry. In *Current Developments in Biotechnology and Bioengineering*. <http://www.sciencedirect.com/science/article/pii/B9780444636645000010>
- Sepideh Ghaffari, S., & Ali Jazayeri, S. (2015). The Design of a Shell-Tube Heat Exchanger as Evaporator an Absorption Chiller Cycle to Reduce the

---

Ardust Dian Libels Gustaref	(16/400122/TK/45136)
Arnold Lutby Sitohang	(16/400126/TK/45140)
Kevin Chandra Kurniawan	(16/395196/TK/44488)

Temperature of the Air Entering a Diesel Engine Operating at Full Load Engine Medium. *Modern Applied Science*, 9(13), 122.  
<https://doi.org/10.5539/mas.v9n13p122>

Shuler, M. L., Kargi, F., DeLisa, M., & Prentice Hall. (2017). *Bioprocess engineering: Basic concepts*. Boston [i pozostałe: Pearson Education/Prentice Hall.

Siakeng, R., Jawaid, M., Ariffin, H., Sapuan, S. M., Asim, M., & Saba, N. (2019). Natural fiber reinforced polylactic acid composites: A review. *Polymer Composites*, 40(2), 446–463. <https://doi.org/10.1002/pc.24747>

Tsai, S.-P., Moon, S. H., & Coleman, R. (1995). *US5464760 Fermentation and recovery process for lactic acid production*.

Variable, I., Tal, S., & Garcia, T. (2011). ( 12 ) *United States Patent ( 10 ) Patent No .: 2(12)*.

Vidra, A., Németh, Á., & Salgó, A. (2019). Factors affecting precipitation of calcium lactate from fermentation broths and from aqueous solution. *Periodica Polytechnica Chemical Engineering*, 63(4), 533–540.  
<https://doi.org/10.3311/PPch.14043>

Vidra, A., Tóth, A. J., & Németh, Á. (2017). Lactic acid production from cane molase. *Waste Treatment and Recovery*, 2(1), 13–16.  
<https://doi.org/10.1515/lwr-2017-0003>

Vidra, A., Tóth, A. J., & Németh, Á. (2017). Lactic acid production from cane molase. *Waste Treatment and Recovery*, 2(1), 13–16.  
<https://doi.org/10.1515/lwr-2017-0003>

Vidra, A., Tóth, A. J., & Németh, Á. (2017). Lactic acid production from cane molase. *Waste Treatment and Recovery*, 2(1), 13–16.  
<https://doi.org/10.1515/lwr-2017-0003>

Wright, A. von, & Axelsson, L. (2020). Lactic Acid Bacteria. In *Lactic Acid Bacteria*. <https://doi.org/10.1201/9780429057465-1>

WSDOT. (2015). Cost Estimating Manual for Projects. In *Washington Departement of Transportation*.  
<https://www.wsdot.wa.gov/publications/manuals/fulltext/M3034/Estimating Guidelines.pdf>

---

Ardust Dian Libels Gustaref	(16/400122/TK/45136)
Arnold Lutby Sitohang	(16/400126/TK/45140)
Kevin Chandra Kurniawan	(16/395196/TK/44488)