

## DAFTAR PUSTAKA

1. Banerjee, G.; Chattopadhyay, P. Vanillin Biotechnology: The Perspectives and Future. *Journal of the Science of Food and Agriculture* 2018, 99.
2. Gallage, Nethaji J.; Møller, Birger L. Vanillin–Bioconversion and Bioengineering of the Most Popular Plant Flavor and Its De Novo Biosynthesis in the Vanilla Orchid. *Molecular Plant* 2015, 8, 40-57.
3. Furuya, T.; Kuroiwa, M.; Kino, K. Biotechnological Production of Vanillin Using Immobilized Enzymes. *Journal of Biotechnology* 2017, 243, 25-28.
4. FAO-STAT. FAO Statistical Database. <http://www.fao.org> 2017.
5. Yepez, R.; Illescas, J.; Gijón, P.; Sanchez-Sánchez, M.; González-Zamora, E.; Santillan, R.; Álvarez, J.; Ibarra, I.; Aguilar, J. HKUST-1 as a Heterogeneous Catalyst for the Synthesis of Vanillin. *Journal of Visualized Experiments* 2016, 2016.
6. Bhari, R.; Singh, R.: Microbial Production of Natural Flavours. In *Technology of Handling, Packaging, Processing, environmental Fruitsand Vegetables: Theory and Practicals*; New India Publishing Agency, 2019; pp 767-813.
7. Longo, M.; Sanromán, M. Production of Food Aroma Compounds: Microbial and Enzymatic Methodologies. *Food Technology and Biotechnology* 2005, 44.
8. Kaur, B.; Chakraborty, D. Biotechnological and Molecular Approaches for Vanillin Production: a Review. *Applied biochemistry and biotechnology* 2013, 169.
9. Grogan, G.: *Practical Biotransformations: A Beginner's Guide*; John Wiley and Sons, Ltd., 2009.
10. Mishra, S.; Sachan, A.; Ghosh Sachan, S. Production of Natural Value-Added Compounds: An Insight Into the Eugenol Biotransformation Pathway. *Journal of industrial microbiology & biotechnology* 2013, 40.
11. Antoniotti, S. Tuning of Essential Oil Properties by Enzymatic Treatment: Towards Sustainable Processes for the Generation of New Fragrance Ingredients. *Molecules* 2014, 19, 9203-9214.
12. Groussin, A.-L.; Antoniotti, S. Valuable Chemicals by The Enzymatic Modification of Molecules of Natural Origin: Terpenoids, Steroids, Phenolics and Related Compounds. *Bioresource Technology* 2012, 115, 237-243.
13. de Carvalho, C. Whole Cell Biocatalysts: Essential Workers From Nature to The Industry. *Microbial biotechnology* 2017, 10, 250-263.
14. Ashengraph, M.; Amini, J. J. B. Bioconversion of Isoeugenol to Vanillin and Vanillic Acid Using the Resting Cells of Trichosporon asahii. 2017, 7, 358.
15. Yamada, M.; Okada, Y.; Yoshida, T.; Nagasawa, T. Biotransformation of isoeugenol to vanillin by Pseudomonas putida IE27 cells. *Applied microbiology and biotechnology* 2007, 73, 1025-1030.
16. Zhang, Y.; Xu, P.; Han, S.; Yan, H.; Ma, C. Metabolism of Isoeugenol Via Isoeugenol-Diol by a Newly Isolated Strain of *Bacillus subtilis* HS8. *Applied microbiology and biotechnology* 2007, 73, 771-779.
17. Zhao, L.; Jiang, Y.; Fang, H.; Zhang, H.; Cheng, S.; Shahid, M.; Riaz, S.; Wu, Y. Biotransformation of Isoeugenol into Vanillin Using Immobilized Recombinant Cells Containing Isoeugenol Monooxygenase Active Aggregates. *Applied biochemistry and biotechnology* 2019.
18. Fratiwi, I.; Adipati, N.; Widjayanti, H. Indigen Bacteria from Spent Bleaching Earth Waste as A Removal Agent of Fe and Cu. *Indonesian Journal of Fundamental and Applied Chemistry* 2018, 3, 66-70.

19. Ashengraph, M.; Nahvi, I.; Zarkesh-Esfahani, S. H.; Momenbeik, F. Conversion of Isoeugenol to Vanillin by Psychrobacter sp. Strain CSW4. *Applied biochemistry and biotechnology* 2012, 166, 1-12.
20. Cortés-Rojas, D.; Souza, C.; Oliveira, W. Clove (*Syzygium aromaticum*): A precious spice. *Asian Pacific journal of tropical biomedicine* 2014, 4, 90-96.
21. Goñi, M. G.; Roura, S. I.; Ponce, A. G.; Moreira, M. R.: Chapter 39 - Clove (*Syzygium aromaticum*) Oils. In *Essential Oils in Food Preservation, Flavor and Safety*; Preedy, V. R., Ed.; Academic Press: San Diego, 2016; pp 349-357.
22. Tursiloadi, S.; Artanti, N.; Sulawatty, A. Chemical Catalytic and Biocatalytic Process of Clove Oil Derivatives Review. *Indonesian Journal of Applied Chemistry* 2015, 17, 69-85.
23. Jirovetz, L.; Buchbauer, G.; Stoilova, I.; Stoyanova, A.; Krastanov, A.; Schmidt, E. Chemical Composition and Antioxidant Properties of Clove Leaf Essential Oil. *Journal of agricultural and food chemistry* 2006, 54, 6303-6307.
24. Baqueiro-Peña, I.; Guerrero-Beltrán, J. Á. Vanilla (*Vanilla planifolia* Andr.), Its Residues and Other Industrial By-Products For Recovering High Value Flavor Molecules: A Review. *Journal of Applied Research on Medicinal and Aromatic Plants* 2017, 6, 1-9.
25. Singh, A.; Mukhopadhyay, K.; Ghosh Sachan, S. Biotransformation of Eugenol to Vanillin by a Novel Strain *Bacillus safensis* SMS1003. *Biocatalysis and Biotransformation* 2018, 37, 1-13.
26. Hua, D.; Ma, C.; Lin, S.; Song, L.; Deng, Z.; Maomy, Z.; Zhang, Z.; Yu, B.; Xu, P. Biotransformation of Isoeugenol to Vanillin by a Newly Isolated *Bacillus pumilus* Strain: Identification of Major Metabolites. *Journal of Biotechnology* 2007, 130, 463-470.
27. Elyza, F.; Gofar, N.; Munawar, M. Identifikasi dan Uji Potensi Bakteri Lipopolitik Dari Limbah SBE (Spent Bleaching Earth) Sebagai Agen Bioremediasi. *Jurnal Ilmu Lingkungan* 2016, 13, 12.
28. LaCourse, W. R.: HPLC Instrumentation. In *Reference Module in Chemistry, Molecular Sciences and Chemical Engineering*; Elsevier, 2017.
29. Santiago, M.; Strobel, S.: Chapter Twenty-Four - Thin Layer Chromatography. In *Methods in Enzymology*; Lorsch, J., Ed.; Academic Press, 2013; Vol. 533; pp 303-324.
30. Poole, C. F.: Chapter 6 - Thin-Layer Chromatography. In *The Essence of Chromatography*; Poole, C. F., Ed.; Elsevier Science: Amsterdam, 2003; pp 499-567.
31. Sanders, E. Aseptic Laboratory Techniques: Plating Methods. *Journal of visualized experiments : JoVE* 2012, e3064.
32. Hyldgaard, M.; Mygind, T.; Piotrowska, R.; Foss, M.; Meyer, R. L. Isoeugenol has a non-disruptive detergent-like mechanism of action. *Front Microbiol* 2015, 6, 754-754.
33. Foysal, M. J.; Lisa, A. K. Isolation and Characterization of *Bacillus* sp. Strain BC01 From Soil Displaying Potent Antagonistic Activity Against Plant and Fish Pathogenic Fungi and Bacteria. *J Genet Eng Biotechnol* 2018, 16, 387-392.
34. Santhini, K.; Myla, J.; Sajani, S.; Usharani, G. J. B. r. i. Screening of *Micrococcus* sp From Oil Contaminated Soil With Reference to Bioremediation. 2009, 2, 248-252.
35. Kumar, R.; Sharma, P.; Mishra, P. J. I. J. o. P. R. A Review On the Vanillin Derivatives Showing Various Biological Activities. *International Journal of Pharmatech Research* 2012, 4, 266-279.
36. Technologies, A. Tips and Tricks of HPLC System Troubleshooting <http://www.agilent.com> 2009.

