

DAFTAR PUSTAKA

- Afoakwa, E. O., & Paterson, A. (2010). Cocoa Fermentation: Chocolate Flavour Quality. In *Encyclopedia of Biotechnology in Agriculture and Food* (pp. 457–468). Oxford, U.K.: Taylor & Francis Publishing Inc.
- Afoakwa, E. (2014). *Cocoa Production and Processing Technology*. CRC Press.
- Afoakwa EO, Budu AS, Mensah-brown H, Felix J. (2014). Changes in biochemical and physico-chemical qualities during drying of pulp preconditioned and fermented cocoa (*Theobroma cacao*) Beans. *Journal of Nutritional Health and Food Science* 2:1-8.
- Anonim. (2016). Statistik Pertanian 2016. Pusat Data dan Sistem Informasi Pertanian. Kementerian Pertanian Republik Indonesia, Jakarta.
- Ardhana, M. M., & Fleet, G. H. (2003). The microbial ecology of cocoa bean fermentations in Indonesia. *International Journal of Food Microbiology*, 86(1–2), 87–99.
- Beckett, S. (2000). The History of Chocolate. *The Science of Chocolate*, 1–7.
- Bertazzo, A., Comai, S., Brunato, I., Zancato, M., & Costa, C. V. L. (2011). The content of protein and non-protein (free and protein-bound) tryptophan in *Theobroma cacao* beans. *Food Chemistry*, 124(1), 93–96.
- Biehl, B., & Ziegleder, G. (2003). Cocoa: Chemistry of processing. In *Encyclopedia of Food Sciences and Nutrition* (2 nd editi, pp. 1436–1448). New York: Academic Press.
- Camu, N., De Winter, T., Verbrugghe, K., Cleenwerck, I., Vandamme, P., Takrama, J. S., De Vuyst, L. (2007). Dynamics and biodiversity of populations of lactic acid bacteria and acetic acid bacteria involved in spontaneous heap fermentation of cocoa beans in Ghana. *Applied and Environmental Microbiology*, 73(6), 1809–1824.
- Camu, N., De Winter, T., Addo, S. K., Takrama, J. S., Bernaert, H., & De Vuyst, L. (2008). Fermentation of cocoa beans: influence of microbial activities and polyphenol concentrations on the flavour of chocolate. *Journal of the Science of Food and Agriculture*, 88, 2288–2297.
- Cempaka, L., Aliwarga, L., Purwo, S., & Kresnowati, M. T. A. P. (2014). Dynamics of Cocoa Bean Pulp Degradation during Cocoa Bean Fermentation: Effects of Yeast Starter Culture Addition. *Journal of Mathematical and Fundamental Sciences*, 46(1), 14–25.
- Copetti, M. V., Iamanaka, B. T., Frisvad, J. C., Pereira, J. L., & Taniwaki, M. H. (2011). Mycobiota of cocoa: From farm to chocolate. *Food Microbiology*,

28(8), 1499–1504.

- De Vuyst, L., Lefeber, T., Papalexandratou, Z., & Camu, N. (2010). The Functional Role of Lactic Acid Bacteria in Cocoa Bean Fermentation. In F. Mozzi, R. R. Raya, & G. M. Vignolo (Eds.), *Biotechnology of Lactic Acid Bacteria: Novel Applications* (pp. 301–325). Blackwell Publishing.
- De Vuyst, L., & Weckx, S. (2016). The cocoa bean fermentation process: from ecosystem analysis to starter culture development. *Journal of Applied Microbiology*, *121*(1), 5–17.
- Di Mattia, C. D., Sacchetti, G., Mastrocola, D., & Serafini, M. (2017). From cocoa to chocolate: The impact of processing on in vitro antioxidant activity and the effects of chocolate on antioxidant markers in vivo. *Frontiers in Immunology*, *8*(SEP), 1–7.
- Fahrurrozi. (2015). *Microbiological and Biochemical Investigations of Cocoa Bean Fermentation*. University of Hamburg.
- Febriami, Hanny; Kresnowati, M. P. (2015). Mapping the Effects of Starter Culture Addition on Cocoa Bean Fermentation. *ASEAN Engineering Journal*, *5*(1), 25–37.
- Gandjar, I. (2003). *Tapai From Cassava And Cereals*. Paper Presented At The First International Symposium And Workshop On Insight To The World Of Indigenous Fermented Foods For Technology Development And Food Safety, Kasetsart University, August 13-17, 200
- Gourieva, K., & Tserevitinov, O. (1979). Method of evaluating the degree of fermentation of cocoa bean. USSR patent 646
- Hansen, C. E., Del Olmo, M., & Burri, C. (1998). Enzyme activities in cocoa beans during fermentation. *Journal of the Science of Food and Agriculture*, *77*(2), 273–281.
- Haryadi & Supriyanto (2012). *Teknologi Cokelat*. Gadjah Mada University Press. Yogyakarta.
- Ho, V. T. T., Zhao, J., & Fleet, G. (2014). Yeasts are essential for cocoa bean fermentation. *International Journal of Food Microbiology*, *174*, 72–87.
- Ho, V. T. T., Zhao, J., & Fleet, G. (2015). The effect of lactic acid bacteria on cocoa bean fermentation. *International Journal of Food Microbiology*, *205*, 54–67.
- Kasmidjo, R.B. (1983). *Mikrobiologi Ragi*. PAU Pangan dan Gizi Universitas Gadjah Mada, Yogyakarta.
- Lefeber, T., Janssens, M., Camu, N., & De Vuyst, L. (2010). Kinetic analysis of strains of lactic acid bacteria and acetic acid bacteria in cocoa pulp

- simulation media toward development of a starter culture for cocoa bean fermentation. *Applied and Environmental Microbiology*, 76(23), 7708–7716.
- Lefeber, T., Gobert, W., Vrancken, G., Camu, N., & De Vuyst, L. (2011). Dynamics and species diversity of communities of lactic acid bacteria and acetic acid bacteria during spontaneous cocoa bean fermentation in vessels. *Food Microbiology*, 28(3), 457–464.
- Lefeber, T., Janssens, M., Moens, F., Gobert, W., & De Vuyst, L. (2011). Interesting starter culture strains for controlled cocoa bean fermentation revealed by simulated cocoa pulp fermentations of cocoa-specific lactic acid bacteria. *Applied and Environmental Microbiology*, 77(18), 6694–6698.
- Lima, Lí. J. R., Almeida, M. H., Rob Nout, M. J., & Zwietering, M. H. (2011). *Theobroma cacao* L., “the food of the gods”: Quality determinants of commercial cocoa beans, with particular reference to the impact of fermentation. *Critical Reviews in Food Science and Nutrition*, 51(8), 731–761. <http://doi.org/10.1080/10408391003799913>
- Lisdiyanti, P., Katsura, K., Potacharoen, W., Navarro, R. R., Yamada, Y., Uchimura, T., & Komagata, K. (2003). Diversity of Acetic Acid Bacteria in Indonesia, Thailand, and the Philippines, 19(2).
- Lopez, A.S. (1986). Chemical changes occurring during the processing of cocoa. In Proceedings of the cocoa biotechnology symposium. P.S. Dimick (Ed.). Department of Food Science. Pennsylvania State University: University Park, pp. 19–53.
- Lopez, A. S., & Dimick, P. S. (1995). Cocoa fermentation. In *Biotechnology: A Multi-Volume Comprehensive Treatise, Vol. 9, Enzymes, Biomass, Food and Feed, 2nd Edition* (pp. 563–577). Weinheim: Wiley-VCH.
- Motamayor, J. C., Lachenaud, P., da Silva e Mota, J. W., Loor, R., Kuhn, D. N., Brown, J. S., & Schnell, R. J. (2008). Geographic and genetic population differentiation of the Amazonian chocolate tree (*Theobroma cacao* L.). *PLoS ONE*, 3(10).
- Nigam, P. S., & Singh, A. (2014). Cocoa and Coffee Fermentations. In C. A. Batt & M. Lou Tortorello (Eds.), *Encyclopedia of Food Microbiology* (Second Edi, Vol. 1, pp. 485–492). Elsevier.
- Nurhartadi, E. (2005). *Isolasi dan Karakterisasi Yeast Amilolitik dari Ragi Tape*. Tesis Sekolah Pasca Sarjana Program Studi Ilmu dan Teknologi Pangan. Universitas Gadjah Mada, DI.Yogyakarta.
- Papalexandratou, Z., Lefeber, T., Bahrim, B., Lee, O. S., Daniel, H. M., & De Vuyst, L. (2013). *Hanseniaspora opuntiae*, *Saccharomyces cerevisiae*, *Lactobacillus fermentum*, and *Acetobacter pasteurianus* predominate during well-performed Malaysian cocoa bean box fermentations, underlining the

importance of these microbial species for a successful cocoa . *Food Microbiology*, 35(2), 73–85.

- Pereira, G. V. de M., Miguel, M. G. da C. P., Ramos, Cí. L., & Schwan, R. F. (2012). Microbiological and physicochemical characterization of small-scale cocoa fermentations and screening of yeast and bacterial strains to develop a defined starter culture. *Applied and Environmental Microbiology*, 78(15), 5395–5405.
- Pino, J. A., Ceballos, L., & Quijano, C. E. (2010). Headspace volatiles of theobroma cacao L. Pulp from Colombia. *Journal of Essential Oil Research*, 22(2), 113–115.
- Raharjanti, D. S. (2006). *Penghambatan Pertumbuhan Aspergillus parasiticus dan Reduksi Aflatoksin Oleh Kapang dan Khamir Ragi Tape*. Institut Pertanian Bogor.
- Sa, V. De, Cammarota, M. C., Matos, A., & Ferreira-leita, V. S. (2011). Simultaneous analysis of carbohydrates and volatile fatty acids by HPLC for monitoring fermentative biohydrogen production, 1–10.
- Saltini, R., Akkerman, R., & Frosch, S. (2013). Optimizing chocolate production through traceability: A review of the influence of farming practices on cocoa bean quality. *Food Control*, 29(1), 167–187.
- Saono, S., T. Basuki, dan D.D. Sastraatmadja. (1978). *Indonesian Ragi*. Symposium on Indigenous Foods, Bangkok, Thailand
- Saono, S. (1982). *Microflora of Ragi: Its Composition and As Source of Industrial Yeast*. Proceedings Of A Technical Seminar. Published by indonesia institute of science (LIPI) Jakarta, Indonesia: 241-249
- Schwan, R. F., Rose, A., & Board, R. (1995). Microbial fermentation of cocoa beans with emphasis on enzymatic degradation of the pulp. *J. Appl. Bacteriol. Symp. Suppl.*, 79, S96–S107.
- Schwan RF, Cooper RM, Wheals AE. (1997). Endopolygalacturonase secretion by *Kluyveromyces marxianus* and other cocoa pulp-degrading yeasts. *Enzyme Microb Technol* 21:234-244
- Schwan, R. F. (1998). Cocoa fermentations conducted with a defined microbial cocktail inoculum. *Applied and Environmental Microbiology*, 64(4), 1477–1483.
- Schwan, R. F., & Wheals, A. E. (2004). The microbiology of cocoa fermentation and its role in chocolate quality. *Critical Reviews in Food Science and Nutrition*, 44(4), 205–221.
- Steinkraus, K.H. (editor). (1996). *Handbook Of Indigenous Fermented Foods*.

Marcel Dekker, Inc., New York

- Stoll, L. (2010). Biochemische Indikatoren für Keimung und Fermentation in Samen von Kakao (*Theobroma cacao* L.), 1–352.
- Supriyanto, R., Ohba, T., Koga, T., & Ueda, S. (1986). *Liquefaction And Aroma Formation Of Glutinous Rice In Tape Preparation By Ragi*. Microbial Utilization Of Renewable Resources. International Center Of Cooperative Research In Biotechnology, Japan 6: 114, 115
- Thompson, S. S., Miller, K. B., & Lopez, A. S. (2007). Cocoa and Coffee. In M. Doyle & L. Beuchat (Eds.), *Food Microbiology: Fundamentals and Frontiers, Third Edition* (pp. 837–850). Whashington DC.
- Tomlins, K. I., Baker, D. M., Daplyn, P., & Adomako D. (1993). Effect of fermentation and drying practices on the chemical and physical profiles of Ghana cocoa. *Food Chem* 46:257-263.
- Voigt, J., Voigt, G., Heinrichs, H., Wrann, D., & Biehl, B. (1994). In vitro studies on the proteolytic formation of the characteristic aroma precursors of fermented cocoa seeds : The significance of endoprotease specificity, *51*, 7–14.
- Wahyudi, T., Panggabean, T. R., Pujiyanto. (2008). *Panduan Lengkap Kakao*. Penebar Swadaya. Jakarta.
- Wood G. A. R., & Lass R. (2008). *Cocoa*. Wiley-Blackwell, Chichester. pp 10-47.
- Wollgast, J., & Anklam, E. (2000). Review on polyphenols in *Theobroma cacao*: Changes in composition during the manufacture of chocolate and methodology for identification and quantification. *Food Research International*, 33(6), 423–447.