

DAFTAR PUSTAKA

- A.O.A.C. (1995). *Official methods of analysis*. Association of Official Analytical Chemists. Washington, DC.
- Atanda, S. A., Pessu, P. O., Agoda, S., Isong, I. U., Adekalu, O. A., Echendu, M. A. dan Falade, T. C. (2011). Fungi and mycotoxins in stored foods. *African Journal of Microbiology Research* **5**(25): 4373-4382.
- Babitha, S., Soccol, C.R., dan Pandey, A. (2006). Jackfruit seed – a novel substrate for the production of *Monascus* pigments through solid-state fermentation. *Food Technology and Biotechnology* **44**(4): 465-471.
- Baneshi, F., Azizi, M., Saberi M., Farsi, M. (2015). Gibberellic acid, amino acids (glycine and L-leucine), vitamin B₂ and zinc as factors affecting the production pigments by *Monascus purpureus* in a liquid culture using response surface methodology. *African Journal of Biotechnology* **13**(13): 1484-1490
- Barnard, E.L. dan P.F. Cannon. (1987). A new species of *Monascus* from pine tissues in Florida. *Mycologia* **79** (3): 479-484.
- Blanc, P. J., Laussac, J. P., Le Bars, J., Le Bars, P., Loret, M. O., Pareilleux, A., Prome, D., Prome, J. C., Santerre A. L. dan Goma, G. (1995). Characteristization of monascidin A from *Monascus* as citrinin. *International Journal of Food Microbiology* **27**: 201-213.
- Barbosa, R.N., Leong, S.L//. Vinner-Pettersson, O., Chen, A.J., Souza-Motta, C.M., Frisvad, J.C., Samson, R.A., Oliveira, N.T. dan Houbraken, J. (2017). Phylogenetic analysis of *Monascus* and new species from honey, pollen and nests of stingless bees. *Studies in Mycology* **86**: 29-51.
- Cannon, P.F., Abdullah, S.K., dan Abbas, B.A. (1998). Two new species of *Monascus* from Iraq. with a key to known species of the genus. *Mycol. Res.* **99**(6): 659-662.
- Carvalho, J.C., Oishi, B.O., Pandey, A., and Soccol, C.R. (2005). Biopigments from *Monascus*: strain selection, citrinin production and color stability. *Brazilian Archives of Biology and Technology* **48** (6): 885-894
- Carvalho, J.C., Oishi, B.O., Woiciechowski, A.L., Pandey, A., Babitha, S., dan Soccol, C. (2007). Effect of substrates on the production of *Monascus* biopigments by solid-state fermentation and pigment extraction using different solvents. *Indian Journal of Biotechnology* **6**: 194-199.

- Chairote, E., Chairote, G., Wongpornchai, S. dan Lumyong S. (2007). Preparation of red yeast rice using various thai glutinous rice and *Monascus purpureus* CMU001 isolated from commercial Chinese red yeast rice sample. *KMITL Sci.Tech.J.* **7**: 28-37.
- Chang, C.H., Yu, F.Y., Wu, T.S., Wang, L.T. dan Liu, B.H. (2011). Mycotoxin citrinin induced cell cycle G2/M arrest and numerical chromosomal aberration associated with disruption of microtubule formation in human cells. *Toxicological Sciences* **119**(1): 84-92.
- Chen, F. dan Hu, X. (2005). Study on red fermented rice with high concentration of monacolin K and high concentration K and low concentration of citrinin. *International Journal of Food Microbiology* **103**: 331-337.
- Chen, Y. P., Tseng, C. P., Chien, I. L., Wang, W. Y., Liaw, L. L. dan Yuan, G. F. (2008). Exploring the distribution of citrinin biosynthesis related genes among *Monascus* species. *Journal of Agriculture and Food Chemistry* **56** (24): 11767–11772.
- Cheng, M. J., Wui, M. D., Yang, P. S., Chen, J. J., Chen, I. S., Chen, Y. L. dan Yuan, G. F. (2010). Secondary metabolites isolated from the fungus *Monascus kaoliang* fermented rice. *J. Chil. Chem. Soc.* **55**(1): 107-110.
- Chisti, Y. (1999). Fermentation (industrial). *Dalam*: Robinson, R., Batt, C. dan Patel, P. (eds). *Encyclopedia of Food Microbiology*. Academic Press, London.pp.: 663-674.
- Chung, C.C., Chen, H.H., dan Hsieh, P.C. (2008). Optimization of the *Monascus purpureus* fermentation process based on multiple performance characteristics. *Journal of Grey System* **11**(2): 85-96.
- Danuri, H. (2008). Optimizing angkak pigments and lovastatin production by *Monascus purpureus*. *Hayati Journal of Biosciences* **15**(2): 61-66.
- Devi, P., D'Souza, L., Kamat, T., Rodrigues, C. dan Naik, C.G. (2009). Batch culture fermentation of *Penicillium chrysogenum* and a report on the isolation, purification, identification and antibiotic activity of citrinin. *Indian Journal of Marine Sciences* **38**(1): 38-44.
- Dikshit, R. dan Tallapragada, P. (2011). *Monascus purpureus*: A potential source for natural pigment production. *Journal of Microbiology and Biotechnology Research* **1**(4): 164-174.
- Dufosse, L., Galaup, P., Yaron, A., Arad, S.M., Blanc P., Murthy, K.N.C., dan Ravishankar, G.A. (2005). Microorganisms and microalgae as sources of

pigments for food use: a scientific oddity or an industrial reality?. Review. *Trends in Food Science & Technology* **16**: 389-406.

Erdogrul, O. dan Azirak, S. (2004). Review of the studies on the red yeast rice (*Monascus purpureus*). *Turkish Electronic Journal of Biotechnology* **2**(37): 37-49.

Fabre, C.E., Santerre, A.L., Loret, M.O., Baberian, R., Pareilleux, A., Goma, G. dan Blanc, P.J. (1993). Production and food application of the red pigments of *Monascus ruber*. *Journal of Food Science* **58**(5): 1099-1110.

Feng Y, Shao Y, dan Chen F. 2012. *Monascus* pigments. *Appl Microbiol Biot.* **96**: 1421-1440.

Feng, Y., Chen, W. dan Chen, F. (2016). A *Monascus pilosus* MS-1 strain with high-yield monacolin K but no citrinin. *Food Sci. Biotechnol.* **25**(4): 1115-1122.

Flajs, D. dan Peraica, M. (2009). Toxicological properties of citrinin. *Archives of Industrial Hygiene and Toxicology Journal* **60**:457-464.

Ganrong, X., Yang, G., Ma, J. dan Wu, Y. (1998). Solid State Fermentation of *Monascus anka* with Corn as The Raw Material. *Dalam Symposium on Monascus Culture and Applications*. Centre Pour L'Unesco, Toulouse, France: Laboratoire Biotechnologies-Bioprecedes, UMR-CNRS 5504, Institut National Des Sciences Appliquees de Toulouse.

Gordon, R.Y., Cooperman, T., Obermeyer, W. dan Becker, D.J. (2010). Marked variability of monacolin levels in commercial red yeast rice products. *Arch Intern Med.* **170**(19):1722-1727.

Hajjaj, H., Klæbe, A., Loret, M.O., Goma, G., Blanc, P. J. dan Francois, J. (1999). Biosynthetic pathway of citrinin in the filamentous fungus *Monascus ruber* as revealed by ¹³C Nuclear Magnetic Resonance. *Applied and Environmental Micro.* **65**(1): 311-314.

Hajjaj, H., Klæbe, A., Goma, G., Blanc, P. J., Barbier, E. dan Francois, J. (2000). Medium-chain fatty acids affect citrinin production in the filamentous fungus *Monascus ruber*. *Applied and Environmental Microbiology* **66**(3): 1120-1125.

Hajjaj, H., Francois, J.M., Goma, G dan Blanc, P.J. (2012). Effect of amino acids on red pigments and citrinin production in *Monascus ruber*. *Journal of Food Science* **77**(3): M156-M159.

Hawksworth, D.L. dan Pitt, J.I. (1983). A new taxonomy for *Monascus* species based on cultural and microscopical characters. *Aust, J, Bot.* **31**:51-61.

- Heber, D., Yip, I., Ashley, J. M., Elashoff, D. A., Elashoff, R. M., dan Go, V. L. (1999). Cholesterol-lowering effects of a proprietary Chinese red-yeast-rice dietary supplement. *Am J Clin Nutr* **69**:231–6.
- Hocking, A.D., dan Pitt, J.I. (1988). Two new species of xerophilic fungi and a further record of *Eurotium halophilicum*. *Mycologia* **80**(1): 82-88.
- Holker, U., Hofer, M. dan Lenz, J. (2004). Biotechnological advantages of laboratory-scale solid-state fermentation with fungi. *Appl Microbiol Biotechnol* **64**:175-186.
- Hsu, Y. W., Hsu, L. C., Liang, Y. H., Kuo, Y. H. dan Pan, T. M. (2011^a). Anti-tumor and Anti-inflammatory Properties of Ankaflavin and Monaphilone A from *Monascus purpureus* NTU 568. *J. Agric. Food Chem.* **59**(4): 1124-1130.
- Hsu, Y. W., Hsu, L. C., Liang, Y. H., Kuo, Y. H. dan Pan, T. M. 2011^b. New bioactive orange pigments with yellow fluorescence from *Monascus*-fermented dioscorea. *J. Agric. Food Chem.* **59**(9): 4512-4518.
- Juzlova, P., Rezanka, T., Martinkova, L. dan Kren, V. (1996). Long-chain fatty acids from *Monascus purpureus*. *Phytochemistry* **43**(1): 151-153.
- Kamalam, J. N., Anburaj, J., Kuberan, T., Sundaravadivelan, C., Kumar, P., Starlin, T., Sevi, A.T. dan Devi, M.V. (2012). DNA amplification and characterization of pigment producing gene from *Monascus ruber*. *European Journal of Experimental Biology* **2**(2): 427-435.
- Kumari, H.P.M., Naidu, K.A., Vishwanatha, S., Narasimhamurthy, K. dan Vijayalakshmi, G. (2009). Safety evaluation of *Monascus purpureus* red mould rice in albino rats. *Food and Chemical Toxicology* **47**:1719-1746.
- Lee, Y.K. dan Chen, D. (1998). *Monascus* pigment production in submerged fermentation. Dalam Symposium on *Monascus* Culture and Applications. Centre Pour L'Unesco, Toulouse, France: Laboratoire Biotechnologies-Bioprecedes, UMR-CNRS 5504, Institut National Des Sciences Appliquees de Toulouse.
- Lee, B. H., Ho, B. Y., Wang, C.T., dan Pan, T.M. (2009). Red mold rice promoted antioxidase activity against oxidative injury and improved the memory ability of zinc-deficient rats. *Journal of Agricultural and Food Chemistry* **57**(22): 10600-10607.
- Lee, C. L., Hung, H. K., Wang, J. J. and Pan, T. M. (2007). Improving the ratio of monacolin K to citrinin production of *Monascus purpureus* NTU 568

under dioscorea medium through the mediation of pH value and ethanol addition. *Journal of Agricultural and Food Chemistry* **55**: 6493-6502.

Lee, C. H., Lee, C. L. dan Pan, T. M. (2010). A 90-d toxicity study of *Monascus*-fermented products including high citrinin level. *Journal of Food Science* **75**(5): T91-97.

Lee, C. L., Chen, W.P., Wang, J. J. dan Pan, T.M. (2007). A simple and rapid approach for removing citrinin while retaining monacolin K in red mold rice. *Journal of Agricultural and Food Chemistry* **55**: 11101-11108.

Lee, C. L., Kung, Y. H., Wu, C. L., Hsu, Y. W. dan Pan, T.M. (2010). Monascin and ankaflavin act as novel hypolipidemic and high-density lipoprotein cholesterol-raising agents in red mold dioscorea. *Journal of Agricultural Food Chemistry* **58** (16): 9013-9019.

Lee, Y. L., Yang, J. H., dan Mau, J. L. 2008. Antioxidant properties of water extracts from *Monascus* fermented soybeans. *Food Chemistry* **106**: 1128-1137.

Li, C. L., Zhu, Y., Wang, Y. Y., Zhu, J. S., Chang, J. dan Kritchevsky, D. (1998). *Monascus purpureus*-fermented rice (red yeast rice): a natural food product that lowers blood cholesterol in animal models of hypercholesterolemia. *Natr Res* **18**:71–81.

Lin, Y. L., Wang, T. H., Lee, M. H. dan Su, N. W. (2007). Biologically active components and nutraceuticals in the *Monascus*-fermented rice: a review. Mini-Review. *Appl. Microbiol. Biotechnol* **77**: 965-973.

Liu, B. H., Wu T. S., Su, M. C., Chung, C. P. dan Yu, F. Y. (2005). Evaluation of citrinin occurrence and cytotoxicity in *Monascus* fermentation products. *Journal of Agricultural and Food Chemistry* **53**(1):170-175.

Liu, D. C., Wu, S.W. dan Tan, F.J. (2010). Effects of addition of anka rice on the qualities of low-nitrite Chinese sausages. *Food Chemistry* **118**: 245–250.

Liu, R. dan Xu, B. (2013). Optimization of extraction conditions of citrinin from red yeast rice by orthogonal design and quantification of citrinin by high-performance liquid chromatography. *Food Analytical Methods*. **6**: 677-682.

Ma, J., Li, Y., Ye, Q., Li, J., Hua, Y. dan Ju, D. (2000). Constituents of red yeast rice, a traditional Chinese food and medicine. *Journal of Agricultural and Food Chemistry* **48**: 5220–5225.

- Meinicke, R.M., Vendruscolo, F., Moritz, D.E., de Oliveira, D., Schimidell, W., Samothyl, R.W dan Ninow, J. L. 2012. Potential use of glycerol as substrate for the production of red pigments by *Monascus ruber* in submerged fermentation. *Biocatalysis and Agricultural Biotechnology* **1**: 238-242.
- Milanda, T., Wibowo, M.S., Gusdinar, T. dan Dhanutirto, H. (2007). Mutation and characterization of an albino mutant of *Monascus* sp. isolated from the Cikapundung river, Bandung. *Microbiology Indonesia* **1**(1): 19-22.
- Milani, J.M. (2013). Ecological condition affecting mycotoxin production in cereal: a review. *Veterinari Medicina* **58**(8): 405-411.
- Nimnoi, P., Pongsilp, N. dan Lumyong, S. (2015). Utilization of agro-industrial products for increasing red pigment production of *Monascus purpureus* AHK12. *Chiang Mai Journal of Science* **42**(2): 331-338.
- Nugroho, A.D., Setyabudi, F. M. C. S., Salleh, B. dan Rahayu, E.S. (2013). Ochratoxigenic black Aspergilli isolated from dried, agricultural products in Yogyakarta, Indonesia. *Journal of Food Science and Engineering* **3**: 472-480.
- Palo, M.A., Vidal-Abeva, L. dan Maceda, L.M. (2003). A study on angkak and it's production. *The Philippine J. Food Sci.* **89**: 1099-1110.
- Panda, B.P., Javed, S., dan Ali, M. 2010. Production of angkak through co-culture of *Monascus purpureus* and *Monascus ruber*. *Brazilian Journal of Microbiology* **41**: 757-764.
- Park, H. G., dan Jong, S. C. (2003). Molecular characterization of *Monascus* strains based on the D1/D2 regions of LSU rRNA genes. *Mycology science* **44**: 25-32.
- Park, H. G., Stamenova, E. K. dan Jong, S. C. (2004). Phylogenetic relationships of *Monascus* species inferred from the ITS and the partial β -tubulin gene. *Bot. Bull. Acad. Sin.* **45**: 325-330.
- Pattanagul, P., Pinthong, R., Phianmongkhol, A. dan Leksawasdi, N. (2007). Review of angkak production (*Monascus purpureus*). *Chiang Mai Journal of Science* **34**(3): 319-328.
- Peakall, R. dan Smouse P.E. (2012). GenAlEx 6.5: genetic analysis in Excel. Population genetic software for teaching and research – an update. *Bioinformatics* **28**: 2537-2539.
- Peakall, R. dan Smouse P.E. (2006). GENALEX 6: genetic analysis in Excel.

Population genetic software for teaching and research. *Molecular Ecology Notes*. **6**: 288-295.

Pereira, D. G., Tonso, A., dan Kilikian, B.V. (2008). Effect of dissolved oxygen concentration on red pigment and citrinin production by *Monascus purpureus* ATCC 36928. *Braz. J. Chem. Eng.* **25**(2): 247-253.

Permana, D.R., Marzuki, S. dan Tisnadjaja, D. (2004). Analisis kualitas produk fermentasi beras (*Red Fermented Rice*) dengan *Monascus purpureus* 3090. *Biodiversitas* **5**(1): 7-12.

Pisareva, E., Savov, V., dan Kujumdzieva, A. (2005). Pigments and citrinin biosynthesis by fungi belonging to genus *Monascus*. *Z. Naturforsch.* **60c**:116-120.

Pisareva, E. I. dan Kujumdziena, A.V. (2010). Influence of carbon and nitrogen sources on growth and pigment production by *Monascus pilosusu* C1 strain. *Biotechnol. & Biotechnol* **24**: 501-506.

Rasheva, T.V., Nedeva, T. S., Hallet, J. N., dan Kujumdzieva, A. V. (2003). Characterization of a non-pigment producing *Monascus purpureus* mutant strain. *Antonie van Leeuwenhoek* **83**: 333-340.

Rohlf, F.J. (2009) *NTSYSpc Numerical Taxonomy and Multivariate Analysis System Version 2.2* . Applied Biostatic Inc, New York.

Rojsuntornkitti, K., Jittrepotch, N., Kongbangkerd, T. dan Kraboun, K. (2010). Substitution of nitrite by Chinese red broken rice powder in Thai traditional fermented pork sausage (Nham). *International Food Research Journal* **17**: 153-161.

Rosenblitt, A., Agosin, E., Delgado, J. dan Ricardo, P.C. (2000). Solid substrate fermentation of *Monascus purpureus*: Growth, carbon balance, and consistency analysis. *Biotechnol. Prog.* **16**: 152-162.

Said, F. M., Christi Y. dan Brooks, J. (2010). The effect of forced aeration and initial moisture level on red pigment and biomass production by *Monascus ruber* in packed bed solid state fermentation. *Int. J. of Environ. Scie. and Development* **1**(1): 1-4.

Sakai, K., Kinoshita, H., Shimizu, T., dan Nihira, T. (2008). Construction of a citrinin gene cluster expression system in heterologous *Aspergillus oryzae*. *Journal of Bioscience and Bioengineering.* **106**(5): 466-472.

- Samson, R.A., Houbroken, J., Thrane, U., Frisvad, J.C. dan Andersen, B. (2010). *Food and Indoor Fungi*. CBS-KNAW Fungal Biodiversity Centre Utrecht, The Netherlands.
- Samsudin, N. I. P. dan Abdullah, N. (2013). A preliminary survey on the occurrence of mycotoxigenic fungi and mycotoxins contaminating red rice at consumer level in Selangor, Malaysia. *Mycotoxin Research* 29(2): 89-96.
- Sheu, F., Wan, C. L. dan Shyu, Y. T. (2000). Fermentation of *Monascus purpureus* on bacterial cellulose nata and the color stability of *Monascus-nata* complex. *Journal of Food Science* 65(2): 342-345.
- Shi, Y. C. dan Pan, T. M. (2010). Anti-diabetic effects of *Monascus purpureus* NTU 568 fermented products on streptozotocin-induced diabetic rats. *J. Agric. Food Chem.* 58(13): 7634-7640.
- Shimizu, T., Kinoshita, H., Ishihara, S., Sakai, K., Nagai, S. dan Nihira, T. (2005). Polyketide synthase gene responsible for citrinin biosynthesis in *Monascus purpureus*. *Applied and Environmental Microbiology* 71(7): 3453-3457.
- Shimizu, T., Kinoshita, H., Ishihara, S., Sakai, K., Nagai, S., dan Nihira, T. (2007). Identification and in vivo functional analysis by gene disruption of *ctnA*, an activator gene involved in citrinin biosynthesis in *Monascus purpureus*. *Applied and Environmental Microbiology* 73(16): 5097-5103.
- Stchigel, A.M., Cano, J. F., Abdullah, S.K. dan Guarino, J. (2004). New and interesting species of *Monascus* from soil, with a key to known species. *Studies in Mycology* 50: 299-306.
- Srianta, I., Hendrawan, B., Kusumawati, N. dan Blanc, P.J. (2012). Study on durian seed as a new substrate for angkak production. *International Food Research Journal* 19 (3): 941-945.
- Su, Y. C., Chen, W. L. dan Lee, Y. H. (1973). Studies on the anka pigment product by a mutant of *Monascus anka*. Mem Coll Agric, Natl Taiwan Univ 14:41-56 (in Chinese).
- Su, Y.C., Wang, J. J., Lin, T. T. dan Pan, T. M. (2003). Production of the secondary metabolites γ -aminobutyric acid and monacolin K by *Monascus*. *J. Ind. Microbiol Biotechnol* 30: 41-46.
- Suharna, N., Kikuchi, Y. dan Fukatsu, T. (2005). Molecular phylogenetic analysis of *Monascus* fungi based on internal transcribed spacer region. *Biotropia* 24: 62-68.

- Suharna, N. (2009). Variasi intraspecies *Monascus purpureus* dalam berbagai sampel angkak dari Jawa Timur. *Berita biologi* **9**(5): 577-582
- Teixeira, C. C. C., Teixeira, G. A. dan Freitas, L.A.P. (2012). Improving the production and CIELAB* color parameters of *Monascus ruber* pigments using a fractional design. *Asian Journal of Biomedical and Pharmaceutical Sciences* **2**(15): 62-68.
- Tseng, Y. Y., Chen, M. T. dan Lin, C. F. (2000). Growth, pigments production and protease activity of *Monascus purpureus* as effect by salt, sodium nitrite, polyphosphate and various sugars. *Journal of Applied Microbiology* **88**: 31–37.
- Wang, J. J., Lee, C. L. dan Pan, T. M. (2003). Improvement of monacolin K, γ -aminobutyric acid and citrinin production ratio as a function of environmental conditions of *Monascus purpureus* NTU 601. *J Ind Microbiol Biotechnol* **30**: 669-676.
- Wang, J. J., Lee, C. L. dan Pan, T. M. (2004). Modified mutation method for screening low citrinin-producing strains of *Monascus purpureus* on rice culture. *J. Agric. Food Chem.* **52**(23): 6977-6982.
- Wong, H. C. dan Koehler, P.E. (1981). Production and isolation of antibiotics from *Monascus purpureus* and its relationship to pigment production. *Journal of Food Science* **46**: 589–592.
- Wongjewboot, I., dan Kongruang, S. (2011). pH stability of ultrasonic Thai isolated *Monascus purpureus* pigments. *International Journal of Bioscience, Biochemistry and Bioinformatics* **1**(1): 79-83.
- Xie, J. Kim, B. dan Fan, T. (2012). Determination of citrinin in red yeast (mold) rice and dietary supplement by immunoassay. Beacon Analytical System, Inc., Saco, ME. USA. <http://www.beaconkits.com/welcome/wp-content/uploads/2012/10/AOAC-2012-Citrinin.pdf>
- Xu, B.J., Jia, X.Q., Gu, L.J., dan Sung, C.K. (2006). Review on the qualitative and quantitative analysis of the mycotoxin citrinin. *Food Control* **17**: 271-285.
- Yang, Y., Liu, B., Du, K., Li, P., Liang, B., Cheng, X, Du, L., Huang, D, Wang, L. dan Wang, S. (2015). Complete genome sequence and transcriptomics analyses reveal pigment biosynthesis and regulatory mechanisms in an industrial strain, *Monascus purpureus* YY-1. *Scientific reports* **5** (8331): 1-9.

Yang, C.L., Wu, X.P., Chen, B., Deng, S.S., Chen, Z.E, Huang, Y.Y., dan Jin, S.S. (2017). Comparative analysis of genetic polymorphisms among *Monascus* strains by ISSR and RAPD markers. *J. Sci Food Agric.* **97**(2): 636-640.