



DAFTAR PUSTAKA

- Baldus, S., Eiserich, J.P., Brennan, M.L., Jackson, R.M., Alexander, C.B. and Freeman, B.A. 2002. Spatial mapping of pulmonary and vascular nitrotyrosine reveals the pivotal role of myeloperoxidase as a catalyst for tyrosine nitration in inflammatory diseases. *Free Radical Biology and Medicine*, 33(7): 1010-1019.
- Birben, E., Sahiner, U.M., Sackesen, C., Erzurum, S. and Kalayci, O. 2012. Oxidative stress and antioxidant defense. *World Allergy Organ Journal*, 5: 9-19.
- Brennan, M.L., Wu, W., Fu, X., Shen, Z., Song, W. and Frost, H. 2002. A tale of two controversies: defining both the role of peroxidases in nitrotyrosine formation in vivo using eosinophil peroxidase and myeloperoxidase-deficient mice, and the nature of peroxidase-generated reactive nitrogen species. *Journal of Biology Chemistry*, 277: 17415 – 17427.
- Bobadilla, A.V.P., Arevalo, J., Sarro, E., Byrne, H.M., Maini, P.K., Carraro, T., Balocco, S., Meseguer, A. and Alarcon, T. 2019. In vitro cell migration quantification method for scratch assays. *Interface*, 16: 1-11.
- Buranasudja, V. Muangnoi, C., Sanookpan, K., Halim, H., Sritularak, B. and Rojsitthisak, P. 2022. Eriodictyol attenuates H₂O₂-induced oxidative damage in human dermal fibroblasts through enhanced capacity of antioxidant machinery. *Nutrients*, 14: 1-16.
- Butler, M., Spearman, M. And Braasch, K. Monitoring cell growth, viability, and apoptosis. *Methods in Molecular Biology*, 1104: 169-192.
- Caidero, J.V and Jacinto, A. 2013. The role of transcription-independent damage signals in the initiation of epithelial wound healing. *Nature Review Molecular cell Biology*, 14: 249-262.
- Campisi, J. 2005. Senescent cells, tumor suppression, and organismal aging: good citizens, bad neighbors. *Cell*, 120: 513-522.
- Chandramouli, B., Madhavi, L.M., Narendra, K. and Mallikarjuna, K. 2018. Phytochemical and antimicrobial investigations of methanolic seed extract of black rice (*Oryza sativa* L.) mentioned in an ancient palm leaf manuscript



(Talapatra). *World Journal of Pharmaceutical Research SJIF Impact Factor*, 7(3): 598-616.

Chen, J., Ozanne, S. and Hales, N. 2007. Methods of cellular senescence induction using oxidative stress. *Methods in Molecular Biology: Biological Aging: Methods and Protocols*, 14: 180-189.

Chidawanyika, T and Supattapone, S. 2021. Hydrogen peroxide-induced cell death in mammalian cells. *Journal of Cellular Signaling*, 2(3): 206-211.

Christanto, D.R., Mose, J., Yuniarti, T., Bestari, B., Purwesti, Y.A. and Fauziah, P.N. 2020. The role of black rice bran (*Oryza sativa L.* “Sembada Hitam”) on levels of malondialdehyde in induction human umbilical vein endothelial cell serum preeclampsia. *Journal of Obstetrics and Gynecology*, 10(12): 1686-1692.

Choi, M.J., Kim, H.Y. and Cho, E.J. 2012. Anti-aging effect of black rice against H₂O₂-induced prematur senescence. *Journal of Medicinal Plant Research*, 8(20): 3672-3680.

Chowdary, S. 2018. The effects of oxidative stress on inducing senescence in human fibroblast. *Journal of the South Carolina Academy of Science*, 16(2): 1-4.

Cai, H. 2005. Hydrogen peroxide regulation of endothelial function: Origins, mechanisms, and consequences. *Cardiovascular Research*, 68: 26-36.

Davies, K. J. A. 1999. The broad spectrum of responses to oxidants in proliferating cells: a new paradigm for oxidative stress. *International Union Biochemistry and Molecular Biology Life*, 48:41–47.

Demaria, M., Desprez, P.Y., Campisi, J. and Velarde, M. C. 2015. Cell autonomous and non-autonomous effects of senescent cells in the skin. *Journal Invest Dermatology*, 135(7): 1722-1726.

Deubzer, B., Florian, M., Kuci., Z., Niewisch, M., Merkel, G., Handgretinger, R. and Bruchelt, G. 2020. H₂O₂-mediated cytotoxicity of pharmacologic ascorbate concentrations to neuroblastoma cells: potential role of lactate and ferritin. *Cellular Physiology and Biochemistry*. 25: 767-774.

Dodig, S., Cepelak, I. and Pavi I. 2019. Hallmarks of senescence and aging. *Biochemia Medica*, 29(3): 1-15.



- Fitzmaurice, SD., Sivamani, R.K. and Isseroff, R.R. 2011. Antioxidant therapies for wound healing: a clinical guide to currently commercially available products. *Skin Pharmacology and Physiology*, 24(3): 113-126.
- Forman H.J. 2007. Use and abuse of exogenous H₂O₂ in studies of signal transduction. *Free Radical Biology and Medicine*, 42(7): 926-932.
- Fukai, U.M and Nakamura, Y. 2008. Reactive oxygen species and angiogenesis NADPH oxidase as target for cancer therapy. *Journal Cancer Letters*, 266: 37-52.
- Galicka, A., Kretowski, R., Nazaruk, J. and Cechowska, M. 2014. Anethole prevents hydrogen peroxide-induced apoptosis and collagen metabolism alterations in human skin fibroblasts. *Molecular Cellular Biochemistry*, 394: 217-224.
- Gerasymchuk, M., Robinson, G.I., Kovachuk, O. and Kovalchuk, I. 2022. Modeling of the senescence-associated phenotype in human skin fibroblasts. *International Journal of Molecular Sciences*, 23(13): 1-30.
- Goufo, P and Trindade, H. 2013. Rice antioxidants: phenolic acids, flavonoids, anthocyanins, proanthocyanidins, tocopherols, tocotrienols, γ-oryzanol, and phytic acid. *Food Science And Nutrition*, 2(2): 75-104.
- Grada, A., Vinas, M.O., Castrillo, F.P. Obagi, Z. and Falangan, V. 2017. Research techniques made simple: analysis of collective cell migration using the wound healing assay. *Journal of Investigative Dermatology*. 137: 11-16.
- Griffin, M.F., Jardins, H.E., Mascharak, S., Borrelli, M.R. and Longaker, M.T. 2020. Understanding the impact of fibroblast heterogeneity on skin fibrosis. *Disease Models and Mechanisms*, 13(6): 1-9.
- Gross, B.L., Skare, K.J. and Olsen, K.M. 2009. Novel Phr1 mutation and the evolution of phenol reaction variation in US weedy rice (*Oryza sativa*). *New Phytologist*, 184: 842-850.
- Gualda, E.G., Baker, A.G., Fruk, L. Espin, D.M. 2020. A guide to assessing cellular senescence in vitro and in vivo. *The Federation of European Biochemical Societies Journal*, 288: 56-80.
- Gulden, M., Jess, A., Kammann, J., Maser, E. and Seibert, H. 2010. Cytotoxic potency of H₂O₂ in cell cultures: Impact of cell concentration and exposure time. *Free Radical Biology and Medicine*, 40: 1298-1305.



- Hahn, H.J., Kim, K.B., An, I., Ahn, K.J. and Joo, H. 2017. Protective effects of rosmarinic acid against hydrogen peroxide-induced cellular senescence and the inflammatory response in normal human dermal fibroblasts. *Molecular Medicine Reports*, 16(6): 9763-9769.
- Huang, Y.H., Wu, P.Y., Wen, K.C., Lin, C.Y. and Chiang, H.M. 2018. Protective effects and mechanisms of Terminalia catappa L. methenolic extract on hydrogen-peroxide-induced oxidative stress in human skin fibroblasts. *BMC Complementary and Alternative Medicine*, 18: 1-9.
- Hetharia, G.E., Briliannita, A., Astuti M. and Marsono, Y. 2019. Antioxidant extraction based on blackrice (*Oryza sativa* L. Indica). to prevent free radical. *Material Science and Engineering*, 823(1): 1-6.
- Itahana, K., Campisi, J. and Dimri, G.p. 2004. Mechanisms of cellular senescence in human and mouse cells. *Biogerontology*, 5: 1-10.
- Itahana, K., Itahana, Y. and Dimri, G.P. 2013. Colorimetric detection of senescence-associated β galactosidase. *Methods in Molecular Biology*, 965: 143-156.
- Jesus, B.B and Blasco, M.A. 2012. Assessing Cell and Organ Senescence Biomarkers. *Circulation Research*, 111: 97-109.
- Kristamtini., Indrasari, S.D., Widyayanti, S., Andriyanto, R. and Sumarno. 2018. Molecular, morphological, and biochemical identification of sembada merah and sembada hitam rice (*Oryza sativa* L.). *Journal of Physics: Conference series*, 5: 1-7.
- Kong, Y., Cui, H., Ramkumar, C. and Zhang, H. 2011. Regulation of Senescence in Cancer and Aging. *Journal of Aging Research*, 1-15.
- Krtolica, A., Parrinello,S., Lockett, S., Desprez, P.Y. and Campisi, J. 2001. Senescent fibroblasts promote epithelial cell growth and tumorigenesis: a link between cancer and aging. *Proceedings of the National Academy of Sciences*, 98(21): 12072-12077.
- Kuilman, T., Michaloglou, C., Mooi, W.j. Peepre, D.S. 2020. The essence of senescence. *Gene and Development*, 24: 2463-2479.
- Kumar, N and Murali, R.D. 2020. Black rice: a novel ingredients in food processing. *Journal of Nutrition and Food Sciences*, 10(177): 1-7.



- Le, X.T., Huynh, M.T., Pham, T.N., Than, V.T., Toan, T.Q., Bach, L.G., and Trung, N.Q. 2019. Optimization of total anthocyanin content, stability, and antioxidant evaluation of the anthocyanin extract from vietnamese *Carissa carandas* L. fruits. *Processes*, 7(468):1-15.
- Lee, J.J., Ng, S., Hsu, J., Liu, H., Chen, C., Huang, C. and Kuo, W. 2022. Galangin reverses H₂O₂-induced dermal fibroblast senescence via SIRT1-PGC-1α/Nrf2 signaling. *International Journal of Molecular Sciences*, 23(3): 1-15.
- Leibiger, C., Kosyakova, N., Mkrtchyan, H., Glei, M., Trifonov, V. & Liehr, T. 2013. First molecular cytogenetic high resolution characterization of the NIH 3T3 cell line by murine multicolor banding. *Journal of Histochemistry and Cytochemistry*, 61(4): 306–312.
- Li, Y. R., Jia, Z. and Trush, M. 2016. Defining ros in biology and medicine. *Reactive Oxygen Species*, 1(1): 9-21.
- Liang, C. Park, A.Y. and Guan. J.L. 2007. In vitro scratch assay: a convenient and inexpensive method for analysis of cell migration in vitro. *Protocol*, 2(2): 329-333.
- Lintz, M., Munoz, A. and King, C.A.R. 2017. The mechanisc of single cell and collective migration of tumor cells. *Journal of Biomechanical Engineering*, 139(2): 0210051 – 0210059.
- Lobo, V., Patil, A.P. and Chandra, N. 2010. Free radicals, antioxidants and functional foods: Impact on human health. *Pharmacognosy Reviews*, 4(8):181-126.
- Masota, N.E., Vogg, G., and Holzgrabe, U. 2021. Reproducibility challenges in the search for antibacterial compounds from nature. *PLoS One*, 16(7): 1-18.
- Maury, G.L., Rodriguez, D.M., Hendrix, S., Arranz, J.C.E., Boix, Y.F., Pacheco, A.O., Diaz, J.G., Morris,H.J., Dubois, A.F., Aleman, E.I., Beenaerts,N., Santos, I.E., Raton, T.O., Cos, P. and Cuypers, A. 2020. Antioxidants in plants: a valorization potential emphasizing the need for the conservation of plant biodiversity in Cuba. *Antioxidants*, 9(11): 1-36.
- Modak, B.S and Tyrrel, R.M. 2001. *Modulation of Gene Expression by Solar Ultraviolet Radiation*, (Ed): Sun Protection in Man. Elsevier Science:



Amsterdam, pp. 312.

- Oktavya, G., Purwestri, Y.A., Saragih, H.T.S.G. and Nuriliani, A. 2022. Ethanolic extract of black rice ‘Sembada Hitam’ bran protect the cytotoxic effect of H₂O₂ on NIH3T3 cells. *Current Research in Nutrition and Food Sciences*, 11(1): 389-400.
- Omelyanenko, N.P., Slutsky, L.I. and Mironov, S.P. 2014. *Connective Tissue: Histopathology, Biochemistry, Molecular Biology*. CRC Press: Boca Raton.
- Palungwachira, P., Tancharoen, S., Phruksaniyom, C., Klungsaeng, S., Srichan, R., Kikuchi, K. and Nararatwanchai, T. 2019. Antioxidants and anti-inflammatory properties od anthosyanins extracted from *Oryza sativa* L. in primary derma fibroblast. *Oxidative Medicine and Celluar Longevity*, 2019: 1-18.
- Pascalis, C.D and Manneville, S.E. 2017. Single and collective cell migration: the mechanics of adhesions. *Molecular Biology of the Cell*, 28(14): 1833 - 1846.
- Phaniendra, A., Jestadi, D.B. and Periyasamy, L. 2015. Free radicals: properties, sources, targets, and their implication in various diseases. *India Journal of Clinical Biochemistry*, 30: 11-26.
- Pole, A., Dimri, M. and Dimri G. P. 2016. Oxidative stress, cellular senescence and ageing. *AIMS Molecular Sciences*, 3(3): 300-324.
- Poljsak, B., Dahmane, R.G. and Godic, A. 2012. Intrinsic skin aging: the role of oxidative stress. *Acta Dermatovenerologica Alpina, Pannonica et Adriatica*, 21: 33-36.
- Prasad, B. J., Sharavanan, P.S. and Siravaj, R. 2019. Health Benefits of Black Rice-A Review. *Grain & Oil Science and Technology*, 2: 109-113.
- Purwadya, Y.G., Widyaningsih, T.D. and Wijayanti, N. 2015. Efektifitas ekstrak biji pepaya (*Carica papaya* L.) sebagai antidiare pada mencit yang diinduksi *Salmonella typhimurium*. *Jurnal Pangan dan Agroindustri*, 3(4): 1283-1293.
- Quan, C., Cho, M.K., Perry, D. and Quan, T. 2015. Age-associated reduction of cell spreading induces mitochondrial DNA common deletion by oxidative stress in human skin dermal fibroblasts: implication for human skin connective



- tissue aging. *Journal of Biomedical Science*, 22: 62-72.
- Rahimi, A. M., Cai, M. & Hoyer-Fender, S. 2022. Heterogeneity of the NIH3T3 fibroblast cell line. *Cells*, 11: 1-19.
- Ransy, C., Vaz, C., Lombes, A. and Bouillaud, F. 2020. Use of H₂O₂ to cause oxidative stress, the catalase issue. *Intenational Molecular Sciences*, 21: 1-14.
- Rhinn, M., Ritschka, B. and Keyes, W.M. 2019. Cellular senescence in development, regeneration and disease. *Development*, 146: 1-10.
- Samec, D., Maretic, M., Lugaric, I., Mesic, A., Sondi, B.S., and Duraljia, B. 2016. Assessment of the differences in the physical, chemical and phytochemical properties of four strawberry cultivars using principal component analysis. *Food Chemistry*, 194(2016): 828-834.
- Santamarina, S.G., Boronat, S. and Calvo, I.A. 2013. Is oxidized thioredoxin a major trigger for cysteine oxidation? Clues from a redox proteomics approach. *Antioxidants & Redox Signaling*, 18(13): 1549–1556.
- Seawan, N., Vichit, W., Thakam A., Thitipramote, N., Chaiwut, P., Pintathong, P. and Thitilertdech, N. 2014. Antioxidant capacities, phenolic, anthocyanin and proanthocyanidin contents of pigmented rice extracts obtained by microwave-assisted method. *Suranaree Journal of Science and Technology*, 21(4): 301-306.
- Sies, H. 2017. 2014. Role of metabolic H₂O₂ generation: redox signaling and oxidative stress. *Journal of Biological Chemistry*, 289(13): 8735-8741.
- Sies, H. 2017. Hydrogen peroxide as a central redox signaling molecule in physiological oxidative stress: oxidative eustress. *Redox Biology*, 11: 613-619.
- Sies, H., Berndt, C. and Jones D. P. 2017. Oxidative Stress. *The Annual Review of Biochemistry*, 86: 715-748.
- Singh, M., McKenzie, K. And Ma, X. 2017. Effect of dimethyl sulfoxide on in vitro proliferation of skin fibroblast cells. *Journal of Biotech Research*, 8: 78-82.
- Soreja, A., Drews, M. And Malinski, T. 2005. Role of nitric oxide, nitroxidative, and oxidative stress in wound healing . *Pharmacological Reports*, 57: 108-119.



- Suryanti, V., Riyatun., Suharyana, S., Sutarno. and Saputra, O. A. 2020. Antioxidant activity and compound constituents of gamma-irradiated black rice (*Oryza sativa* L.) var. cempo ireng indigenous of Indonesia. *Biodiversitas*, 21(9): 4205-4212.
- Sutanto, N. R., Yusharyahya, S. N., Nilaasari, H., Legiawati, L., Astriningrum, R., Fitri, E. M. 2023. Perkembangan Terkini Proses Penuaan Kulit. *Jurnal Kedokteran Meditek*, 29(1): 98-108.
- Suwarno. 2010. Meningkatkan produksi padi menuju ketahanan pangan yang lestari. *Pangan*, 19(3): 233-243.
- Thanuja, B and Parimalavalli, R. 2018. Role of black rice in health and diseases. *International Journal of Health Sciences and Research*, 8(2): 241-248.
- Tominaga, K. 2015. The emerging role of senescent cells in tissue homeostasis and pathophysiology. *Pathobiology of Aging and Age Related Diseases*, 5: 1-11.
- Trepat, X., Chen, Z. and Jacobson, K. 2012. Cell migration. *Comprehensive Physiology*, 2(4): 2369-2392.
- Tu, Y and Quan, T. 2016. Oxidative stress and human skin connective tissue aging. *Cosmetics*, 3(3): 1-12.
- Walter, M and Marchesan, E. 2011. Phenolic compounds and antioxidant activity of rice. *Brazilian Archives of Biology and Technology*, 54(2): 371-377.
- Wanti, S., Andriani, M.A.M. and Parnanto, N.H.R. 2015. Pengaruh berbagai jenis beras terhadap aktivitas antioksidan pada angkak oleh Monascus purpureus. *Biofarmasi*, 13(1): 1-5.
- Waris, G and Ahsa, H. 2006. Reactive oxygen species: role in the development of cancer and various chronic condition. *Journal of Carcinogenesis*, 5: 1-8.
- Wen, S.Y., Chen, J.Y., Weng, Y.S., Aneja, R., Chen, C.J., Huang, C.Y. and Kuo, W.W. 2017. Galangin suppresses H₂O₂-induced aging in human dermal fibroblasts. *Environmental Toxicology*, 32(12): 2419-2417.
- Widyaningtyas, L.A.M., Yudono, P. and Supriyatna. 2020. Identifikasi karakter morfologi dan agronomi penentu kehampaan malai padi (*Oryza sativa* L.). *Vegetalika*, 9(2): 399-413.
- Zhu, X., Chen, Z., Shen, W., Huang, G., Sedivy, J.M., Wang, H., and Ju, Z. 2021.



Inflammation, epigenetics, and metabolism converge to cell senescence and aging: the regulation and intervention. *Signal Transduction and Targeted Therapy*, 6(1): 1-29.

Zdanov, S., Remacle, J., Toussaint, O. 2006. Establishment of H₂O₂-induced premature senescence in human fibroblast concomitant with increased cellular production of H₂O₂. *Annals of the New York Academy of Science*. 1067: 210-216.

Zulkefli, N., Zahari, C.N.M.C., Sayuti, N.H., Kamarudin, A.A., Saad, N., Hamezah, H.S., Bunawan, H., Baharum, S.N., Mediani, A., Ahmed, Q.U., Ismail, A.F.H. and Sarian, M.N. 2023. Flavonoids as potential wound-healing molecules: emphasis on pathways perspective. *International Journal of Molecular Sciences*, 24(5): 4607