

DAFTAR PUSTAKA

- AAS, 2018. 'Treating Breast Cancer', . URL: <https://www.cancer.org/cancer/breast-cancer/treatment.html> (diakses tanggal 1/5/2018).
- Ahmad, N., Fazal, H., Abbasi, B.H., Farooq, S., Ali, M., dan Khan, M.A., 2012. Biological role of *Piper nigrum* L. (Black pepper): A review. *Asian Pacific Journal of Tropical Biomedicine*, **2**: S1945–S1953.
- Alexsandra da Silva Neto Trajano, L., da Silva, C.L., de Carvalho, S.N., Cortez, E., Mencalha, A.L., de Souza da Fonseca, A., dkk., 2016. Cell viability, reactive oxygen species, apoptosis, and necrosis in myoblast cultures exposed to low-level infrared laser. *Lasers in Medical Science*, **31**: 841–848.
- Allahverdiyev, A.M., Bagirova, M., Nehir, O., Yaman, S., Sefik, E., Cakir, R., dkk., 2012. Aldehyde Dehydrogenase: Cancer and Stem Cells, dalam: Canuto, R.A. (Editor), *Dehydrogenases*. InTech.
- Anonim, 2018. '4T1 ATCC ® CRL-2539™ Mus musculus mammary gland This tumor i', . URL: <https://www.atcc.org/Products/All/CRL-2539.aspx#characteristics> (diakses tanggal 7/6/2018).
- Atal, N. dan Bedi, K., 2010. Bioenhancers: Revolutionary concept to market. *Journal of Ayurveda and Integrative Medicine*, **1**: 96.
- Awad, O., Yustein, J.T., Shah, P., Gul, N., Katuri, V., O'Neill, A., dkk., 2010. High ALDH Activity Identifies Chemotherapy-Resistant Ewing's Sarcoma Stem Cells That Retain Sensitivity to EWS-FLI1 Inhibition. *PLoS ONE*, **5**: .
- Azmir, J., Zaidul, I.S.M., Rahman, M.M., Sharif, K.M., Mohamed, A., Sahena, F., dkk., 2013. Techniques for extraction of bioactive compounds from plant materials: A review. *Journal of Food Engineering*, **117**: 426–436.
- Bae, Y.S., Oh, H., Rhee, S.G., dan Yoo, Y.D., 2011. Regulation of Reactive Oxygen Species Generation in Cell Signaling. *Molecules and Cells*, **32**: 491–509.

- Bagheri, H., Abdul Manap, M.Y.B., dan Solati, Z., 2014. Antioxidant activity of *Piper nigrum* L. essential oil extracted by supercritical CO₂ extraction and hydro-distillation. *Talanta*, **121**: 220–228.
- Bao, L., Haque, A., Jackson, K., Hazari, S., Moroz, K., Jetly, R., dkk., 2011. Increased Expression of P-Glycoprotein Is Associated with Doxorubicin Chemoresistance in the Metastatic 4T1 Breast Cancer Model. *The American Journal of Pathology*, **178**: 838–852.
- Becker, S., 2015. A historic and scientific review of breast cancer: The next global healthcare challenge. *International Journal of Gynecology & Obstetrics*, **131**: S36–S39.
- Bhardwaj, R.K., Glaeser, H., Becquemont, L., Klotz, U., Gupta, S.K., dan Fromm, M.F., 2002. Piperine, a Major Constituent of Black Pepper, Inhibits Human P-glycoprotein and CYP3A4. *Journal of Pharmacology and Experimental Therapeutics*, **302**: 645–650.
- Bombardieri, E., Bonadonna, G., dan Gianni, L. (Editor), 2008. *Breast Cancer: Nuclear Medicine in Diagnosis and Therapeutic Options*. Springer, Berlin ; New York.
- Bruton, L., Bruce Chabner, dan Bjorn Knollman, 2011. *Goodman & Gilman's The Pharmacological Basis of Therapeutics*, 12th ed. Mc Graw Hill Medical, New York.
- Cairns, R.A., Harris, I., McCracken, S., dan Mak, T.W., 2011. Cancer Cell Metabolism. *Cold Spring Harbor Symposia on Quantitative Biology*, **76**: 299–311.
- Childs, A.C., Phaneuf, S.L., Dirks, A.J., Phillips, T., dan Leeuwenburgh, C., 2002. Doxorubicin Treatment in Vivo Causes Cytochrome c Release and Cardiomyocyte Apoptosis, As Well As Increased Mitochondrial Efficiency, Superoxide Dismutase Activity, and Bcl-2:Bax Ratio 8.
- Clark, D.W. dan Palle, K., 2016. Aldehyde dehydrogenases in cancer stem cells: potential as therapeutic targets. *Annals of Translational Medicine*, **4**.

- Čunderlíková, B., Vasovič, V., Sieber, F., Furre, T., Borgen, E., Nesland, J.M., dkk., 2011. Hexaminolevulinate-mediated photodynamic purging of marrow grafts with murine breast carcinoma. *Bone Marrow Transplantation*, **46**: 1118.
- Dai, X., Li, T., Bai, Z., Yang, Y., Liu, X., Zhan, J., dkk., 2015. Breast cancer intrinsic subtype classification, clinical use and future trends. *American Journal of Cancer Research*, **5**: 2929–2943.
- DeBerardinis, R.J. dan Chandel, N.S., 2016. Fundamentals of cancer metabolism. *Science Advances*, **2**: e1600200–e1600200.
- Deng, Y., Sriwiryajan, S., Tedasen, A., Hiransai, P., dan Graidist, P., 2016. Anti-cancer effects of *Piper nigrum* via inducing multiple molecular signaling in vivo and in vitro. *Journal of Ethnopharmacology*, **188**: 87–95.
- Departemen Kesehatan Republik Indonesia, 2010. *Suplemen I Farmakope Herbal Indonesia*.
- DeSantis, C., Siegel, R., dan Jemal, A., 2015. Breast Cancer Facts & Figures 2015-2016. 44.
- Dewick, P.M., 2007. *Medicinal Natural Products: A Biosynthetic Approach*, 2. ed., reprinted. ed. Wiley, Chichester.
- Do, M.T., Kim, H.G., Choi, J.H., Khanal, T., Park, B.H., Tran, T.P., dkk., 2013. Antitumor efficacy of piperine in the treatment of human HER2-overexpressing breast cancer cells. *Food Chemistry*, **141**: 2591–2599.
- Eruslanov, E. dan Kusmartsev, S., 2010. Identification of ROS Using Oxidized DCFDA and Flow-Cytometry, dalam: *Advanced Protocols in Oxidative Stress II, Methods in Molecular Biology*. Humana Press, Totowa, NJ, hal. 57–72.
- Evans, W.C., 2009. *Trease and Evans' Pharmacognosy E-Book*. Elsevier Health Sciences.
- Ferreira, A.L.A., Matsubara, L.S., dan Matsubara, B.B., 2008. Anthracycline-Induced Cardiotoxicity 4.

- Furusawa, S., Kimura, E., Kisara, S., Nakano, S., Murata, R., Tanaka, Y., dkk., 2001. Mechanism of Resistance to Oxidative Stress in Doxorubicin Resistant Cells. *Biological & Pharmaceutical Bulletin*, **24**: 474–479.
- Ge, W., Yuan, M., Ceylan, A.F., Wang, X., dan Ren, J., 2016. Mitochondrial aldehyde dehydrogenase protects against doxorubicin cardiotoxicity through a transient receptor potential channel vanilloid 1-mediated mechanism. *Biochimica et Biophysica Acta (BBA) - Molecular Basis of Disease*, **1862**: 622–634.
- Gewirtz, D., 1999. A critical evaluation of the mechanisms of action proposed for the antitumor effects of the anthracycline antibiotics adriamycin and daunorubicin. *Biochemical Pharmacology*, **57**: 727–741.
- Ghosh, R., Darin, K., Nath, P., dan Deb, P., 2014. An overview of various Piper species for their biological activities. *Int. J. Pharma Res. Rev*, **3**: 67–75.
- Gorgani, L., Mohammadi, M., Najafpour, G.D., dan Nikzad, M., 2017. Piperine—The Bioactive Compound of Black Pepper: From Isolation to Medicinal Formulations. *Comprehensive Reviews in Food Science and Food Safety*, **16**: 124–140.
- Gorrini, C., Harris, I.S., dan Mak, T.W., 2013. Modulation of oxidative stress as an anticancer strategy. *Nature Reviews Drug Discovery*, **12**: 931–947.
- Grinevicius, V.M.A.S., Andrade, K.S., Ourique, F., Micke, G.A., Ferreira, S.R.S., dan Pedrosa, R.C., 2017. Antitumor activity of conventional and supercritical extracts from *Piper nigrum* L. cultivar Bragantina through cell cycle arrest and apoptosis induction. *The Journal of Supercritical Fluids*, **128**: 94–101.
- Gülçin, İ., 2005. The antioxidant and radical scavenging activities of black pepper (*Piper nigrum*) seeds. *International Journal of Food Sciences and Nutrition*, **56**: 491–499.
- Halliwell, B., 2007. Oxidative stress and cancer: have we moved forward? *Biochemical Journal*, **401**: 1–11.

- Hanahan, D. dan Weinberg, R.A., 2011. Hallmarks of Cancer: The Next Generation. *Cell*, **144**: 646–674.
- Hensley, K., Robinson, K.A., Gabbita, S.P., Salsman, S., dan Floyd, R.A., 2000. Reactive oxygen species, cell signaling, and cell injury. *Free Radical Biology and Medicine*, **28**: 1456–1462.
- Jackson, B., Brocker, C., Thompson, D.C., Black, W., Vasiliou, K., Nebert, D.W., dkk., 2011. Update on the aldehyde dehydrogenase gene (ALDH) superfamily. *Human Genomics*, **5**: 283.
- Jackson, S.P. dan Bartek, J., 2009. The DNA-damage response in human biology and disease. *Nature*, **461**: 1071–1078.
- Januchowski, R., Wojtowicz, K., dan Zabel, M., 2013. The role of aldehyde dehydrogenase (ALDH) in cancer drug resistance. *Biomedicine & Pharmacotherapy*, **67**: 669–680.
- Jeena, K., Liju, V.B., Umadevi, N.P., dan Kuttan, R., 2014. Antioxidant, Anti-inflammatory and Antinociceptive Properties of Black Pepper Essential Oil (*Piper nigrum* Linn). *Journal of Essential Oil Bearing Plants*, **17**: 1–12.
- Jelski, W., Kutylowska, E., Laniewska-Dunaj, M., dan Szmitkowski, M., 2011. Alcohol Dehydrogenase (ADH) and Aldehyde Dehydrogenase (ALDH) as Candidates for Tumor Markers in Patients with Pancreatic Cancer 5.
- Jones, R.J., Barber, J.P., Vala, M.S., Collector, M.I., Kaufmann, S.H., Colvin, M., dkk., 1995. Assessment of Aldehyde Dehydrogenase in Viable Cells 6.
- Kakarala, M., Brenner, D.E., Korkaya, H., Cheng, C., Tazi, K., Ginestier, C., dkk., 2010. Targeting breast stem cells with the cancer preventive compounds curcumin and piperine. *Breast Cancer Research and Treatment*, **122**: 777–785.
- Kang, J.H., Lee, S.-H., Hong, D., Lee, J.-S., Ahn, H.-S., Ahn, J.-H., dkk., 2016. Aldehyde dehydrogenase is used by cancer cells for energy metabolism. *Experimental & Molecular Medicine*, **48**: e272–e272.

- Kapoor, I.P.S., Singh, B., Singh, G., De Heluani, C.S., De Lampasona, M.P., dan Catalan, C.A.N., 2009. Chemistry and in Vitro Antioxidant Activity of Volatile Oil and Oleoresins of Black Pepper (*Piper nigrum*). *Journal of Agricultural and Food Chemistry*, **57**: 5358–5364.
- Kaur, P., Nagaraja, G.M., Zheng, H., Gizachew, D., Galukande, M., Krishnan, S., dkk., 2012. A mouse model for triple-negative breast cancer tumor-initiating cells (TNBC-TICs) exhibits similar aggressive phenotype to the human disease. *BMC Cancer*, **12**: .
- Kementrian Kesehatan Republik Indonesia, 2010. *Suplemen I Farmakope Herbal Indonesia*. Kementrian Kesehatan Republik Indonesia.
- Kim, R.-J., Park, J.-R., Roh, K.-J., Choi, A.-R., Kim, S.-R., Kim, P.-H., dkk., 2013. High aldehyde dehydrogenase activity enhances stem cell features in breast cancer cells by activating hypoxia-inducible factor-2 α . *Cancer Letters*, **333**: 18–31.
- Klaunig, J.E., Wang, Z., Pu, X., dan Zhou, S., 2011. Oxidative stress and oxidative damage in chemical carcinogenesis. *Toxicology and Applied Pharmacology*, **254**: 86–99.
- Koleva, I.I., van Beek, T.A., Soffers, A.E.M.F., Dusemund, B., dan Rietjens, I.M.C.M., 2012. Alkaloids in the human food chain - Natural occurrence and possible adverse effects. *Molecular Nutrition & Food Research*, **56**: 30–52.
- Koppaka, V., Thompson, D.C., Chen, Y., Ellermann, M., Nicolaou, K.C., Juvonen, R.O., dkk., 2012. Aldehyde Dehydrogenase Inhibitors: a Comprehensive Review of the Pharmacology, Mechanism of Action, Substrate Specificity, and Clinical Application. *Pharmacological Reviews*, **64**: 520–539.
- Kumar, A. dan Sharma, N., 2015. Comparative efficacy of piperine and curcumin in deltamethrin induced splenic apoptosis and altered immune functions. *Pesticide Biochemistry and Physiology*, **119**: 16–27.

- Larasati, Y.A., Yoneda-Kato, N., Nakamae, I., Yokoyama, T., Meiyanto, E., dan Kato, J., 2018. Curcumin targets multiple enzymes involved in the ROS metabolic pathway to suppress tumor cell growth. *Scientific Reports*, **8**: .
- Liou, G.-Y. dan Storz, P., 2010. Reactive oxygen species in cancer. *Free radical research*, **44**: .
- Loo, T.G., 1987. *Ikhtisar Ringkas Dari Dasar-Dasar Farmakognosi*, 6. PT Kinta-PT Bunda Karya.
- Marchitti, S.A., Brocker, C., Stagos, D., dan Vasiliou, V., 2008. Non-P450 aldehyde oxidizing enzymes: the aldehyde dehydrogenase superfamily. *Expert Opinion on Drug Metabolism & Toxicology*, **4**: 697–720.
- Mariutti, L.R.B., Barreto, G.P. de M., Bragagnolo, N., dan Mercadante, A.Z., 2008. Free radical scavenging activity of ethanolic extracts from herbs and spices commercialized in Brazil. *Brazilian Archives of Biology and Technology*, **51**: 1225–1232.
- Minotti, G., Menna, P., Salvatorelli, E., Cairo, G., dan Gianni, L., 2004. Anthracyclines: Molecular Advances and Pharmacologic Developments in Antitumor Activity and Cardiotoxicity 45.
- Moreb, J.S., Baker, H.V., Chang, L.-J., Amaya, M., Lopez, M.C., Ostmark, B., dkk., 2008. ALDH isozymes downregulation affects cell growth, cell motility and gene expression in lung cancer cells. *Molecular Cancer*, **7**: 87.
- Moreb, J.S., Maccow, C., Schweder, M., dan Hecomovich, J., 2000. 'Expression of Antisense RNA to Aldehyde Dehydrogenase Class-1 Sensitizes Tumor Cells to 4-Hydroperoxycyclophosphamide In Vitro', . URL: <http://jpet.aspetjournals.org/content/jpet/293/2/390.full.pdf> (diakses tanggal 25/5/2018).
- Moreb, J.S., Ucar, D., Han, S., Amory, J.K., Goldstein, A.S., Ostmark, B., dkk., 2012. The enzymatic activity of human aldehyde dehydrogenases 1A2 and 2 (ALDH1A2 and ALDH2) is detected by Aldefluor, inhibited by

- diethylaminobenzaldehyde and has significant effects on cell proliferation and drug resistance. *Chemico-Biological Interactions*, **195**: 52–60.
- Muzio, G., Maggiora, M., Paiuzzi, E., Oraldi, M., dan Canuto, R.A., 2012. Aldehyde dehydrogenases and cell proliferation.
- NBCC, 2009. 'cmag-chemotherapy-guidelines-for-advanced-breast-cancer_504af030defd3.pdf', . URL: https://canceraustralia.gov.au/system/tdf/publications/cmag-chemotherapy-guidelines-for-advanced-breast-cancer_504af030defd3.pdf?file=1&type=node&id=2940 (diakses tanggal 1/5/2018).
- Njila, M.I.N., Mahdi, E., Lembe, D.M., Nde, Z., dan Nyonseu, D., 2017. 'Review on Extraction and Isolation of Plant Secondary Metabolites', . IIE.
- Nogueira, V. dan Hay, N., 2013. Molecular Pathways: Reactive Oxygen Species Homeostasis in Cancer Cells and Implications for Cancer Therapy. *Clinical cancer research : an official journal of the American Association for Cancer Research*, **19**: 4309–4314.
- Paarakh, P.M., Sreeram, D.C., D, S.S., dan Ganapathy, S.P.S., 2015. In vitro cytotoxic and in silico activity of piperine isolated from *Piper nigrum* fruits Linn. *In Silico Pharmacology*, **3**: .
- Panieri, E. dan Santoro, M.M., 2016. ROS homeostasis and metabolism: a dangerous liason in cancer cells. *Cell Death & Disease*, **7**: e2253–e2253.
- Parsa, Y., Mirmalek, S.A., Kani, F.E., Aidun, A., Salimi-Tabatabaee, S.A., Yadollah-Damavandi, S., dkk., 2016. A Review of the Clinical Implications of Breast Cancer Biology. *Electronic Physician*, **8**: 2416–2424.
- Pelicano, H., Carney, D., dan Huang, P., 2004. ROS stress in cancer cells and therapeutic implications. *Drug Resistance Updates*, **7**: 97–110.
- Prasad, S., Gupta, S.C., dan Tyagi, A.K., 2017. Reactive oxygen species (ROS) and cancer: Role of antioxidative nutraceuticals. *Cancer Letters*, **387**: 95–105.

- Prayong, P., Barusrux, S., dan Weerapreeyakul, N., 2008. Cytotoxic activity screening of some indigenous Thai plants. *Fitoterapia*, **79**: 598–601.
- Pubchem, n.d. 'Piperine', . URL: <https://pubchem.ncbi.nlm.nih.gov/compound/638024> (diakses tanggal 1/3/2018).
- Pusat Data dan Informasi Kementerian Kesehatan RI, 2015. 'infodatin-kanker.pdf', . URL: <http://www.depkes.go.id/resources/download/pusdatin/infodatin/infodatin-kanker.pdf> (diakses tanggal 1/5/2018).
- Ragini, P.S., Divya, N.A., Anusha Ch, dan Kanthaiah YV, 2014. 'Enhancement of paclitaxel and doxorubicin cytotoxic in breast cancer cell lines in combination with piperine treatment and analysis of expression of autophagy and apoptosis genes', . URL: <http://jmsronline.com/pdf/122.pdf>.
- Raha, D., Wilson, T.R., Peng, J., Peterson, D., Yue, P., Evangelista, M., dkk., 2014. The Cancer Stem Cell Marker Aldehyde Dehydrogenase Is Required to Maintain a Drug-Tolerant Tumor Cell Subpopulation. *Cancer Research*, **74**: 3579–3590.
- Romero-Garcia, S., Lopez-Gonzalez, J.S., B´ez-Viveros, J.L., Aguilar-Cazares, D., dan Prado-Garcia, H., 2011. Tumor cell metabolism: An integral view. *Cancer Biology & Therapy*, **12**: 939–948.
- Saha, S. dan Verma, R.J., 2015. In vitro and in silico study of *Piper nigrum* on cyclooxygenase-2, inducible nitric oxide synthase and antioxidant enzymes. *Journal of Herbal Medicine*, **5**: 86–98.
- Sari, N.F., Lestari, B., Saputri, D., Ahsani, A.F., Santoso, R.A., Sasmito, E., dkk., 2018. Reveal Cytotoxicity and Antigenotoxicity of *Piper nigrum* L. Ethanolic Extract and its Combination with Doxorubicin on CHO-K1 Cells. *Indonesian Journal of Cancer Chemoprevention*, **8**: 110.
- Selvendiran, K. dan Sakthisekaran, D., 2004. Chemopreventive effect of piperine on modulating lipid peroxidation and membrane bound enzymes in

- benzo(a)pyrene induced lung carcinogenesis. *Biomedicine & Pharmacotherapy*, **58**: 264–267.
- Selvendiran, K., Singh, J.P.V., Krishnan, K.B., dan Sakthisekaran, D., 2003. Cytoprotective effect of piperine against benzo [a] pyrene induced lung cancer with reference to lipid peroxidation and antioxidant system in Swiss albino mice. *Fitoterapia*, **74**: 109–115.
- Selvendiran, K., Thirunavukkarasu, C., Singh, J.P.V., Padmavathi, R., dan Sakthisekaran, D., 2005. Chemopreventive effect of piperine on mitochondrial TCA cycle and phase-I and glutathione-metabolizing enzymes in benzo(a)pyrene induced lung carcinogenesis in Swiss albino mice. *Molecular and Cellular Biochemistry*, **271**: 101–106.
- Simas, N.K., Lima, E. da C., Kuster, R.M., Lage, C.L.S., dan Oliveira Filho, A.M. de, 2007. Potential use of *Piper nigrum* ethanol extract against pyrethroid-resistant *Aedes aegypti* larvae. *Revista da Sociedade Brasileira de Medicina Tropical*, **40**: 405–407.
- Simões, R.V., Serganova, I.S., Kruchevsky, N., Leftin, A., Shestov, A.A., Thaler, H.T., dkk., 2015. Metabolic Plasticity of Metastatic Breast Cancer Cells: Adaptation to Changes in the Microenvironment. *Neoplasia*, **17**: 671–684.
- Singh, S., Brocker, C., Koppaka, V., Chen, Y., Jackson, B.C., Matsumoto, A., dkk., 2013. Aldehyde dehydrogenases in cellular responses to oxidative/electrophilic stress. *Free Radical Biology and Medicine*, **56**: 89–101.
- Srinivasan, K., 2007. Black Pepper and its Pungent Principle-Piperine: A Review of Diverse Physiological Effects. *Critical Reviews in Food Science and Nutrition*, **47**: 735–748.
- Sriwiryajan, S., Tedasen, A., Lailerd, N., Boonyaphiphat, P., Nitruangjarat, A., Deng, Y., dkk., 2016. Anticancer and Cancer Prevention Effects of Piperine-Free *Piper nigrum* Extract on N-nitrosomethylurea-Induced Mammary Tumorigenesis in Rats. *Cancer Prevention Research*, **9**: 74–82.

- Sztalmachova, M., Gumulec, J., Raudenska, M., Polanska, H., Holubova, M., Balvan, J., dkk., 2015. Molecular response of 4T1-induced mouse mammary tumours and healthy tissues to zinc treatment. *International Journal of Oncology*, **46**: 1810–1818.
- Tanei, T., Morimoto, K., Shimazu, K., Kim, S.J., Tanji, Y., Taguchi, T., dkk., 2009. Association of Breast Cancer Stem Cells Identified by Aldehyde Dehydrogenase 1 Expression with Resistance to Sequential Paclitaxel and Epirubicin-Based Chemotherapy for Breast Cancers. *Clinical Cancer Research*, **15**: 4234–4241.
- Tao, Z., Shi, A., Lu, C., Song, T., Zhang, Z., dan Zhao, J., 2015. Breast Cancer: Epidemiology and Etiology. *Cell Biochemistry and Biophysics*, **72**: 333–338.
- Thorn, C.F., Oshiro, C., Marsh, S., Hernandez-Boussard, T., McLeod, H., Klein, T.E., dkk., 2011. Doxorubicin pathways: pharmacodynamics and adverse effects. *Pharmacogenetics and Genomics*, **21**: 440–446.
- Tomita, H., Tanaka, K., Tanaka, T., dan Hara, A., 2016. Aldehyde dehydrogenase 1A1 in stem cells and cancer. *Oncotarget*, **7**: .
- Valla, M., Vatten, L.J., Engstrøm, M.J., Haugen, O.A., Akslén, L.A., Bjørngaard, J.H., dkk., 2016. Molecular Subtypes of Breast Cancer: Long-term Incidence Trends and Prognostic Differences. *Cancer Epidemiology and Prevention Biomarkers*, **25**: 1625–1634.
- Vasiliou, V. dan Nebert, D.W., 2005. Analysis and update of the human aldehyde dehydrogenase (ALDH) gene family. *Human Genomics*, **2**: 138–143.
- Vijayakumar, R.S., Surya, D., dan Nalini, N., 2004. Antioxidant efficacy of black pepper (*Piper nigrum* L.) and piperine in rats with high fat diet induced oxidative stress. *Redox Report*, **9**: 105–110.
- Wang, J. dan Yi, J., 2008. Cancer cell killing via ROS: To increase or decrease, that is the question. *Cancer Biology & Therapy*, **7**: 1875–1884.

- WCRF, 2015. 'Breast cancer statistics | World Cancer Research Fund International',
. URL: <https://www.wcrf.org/int/cancer-facts-figures/data-specific-cancers/breast-cancer-statistics> (diakses tanggal 1/5/2018).
- Wongpa, S., Himakoun, L., Soontornchai, S., dan Temcharoen, P., 2007. Antimutagenic effects of piperine on cyclophosphamide-induced chromosome aberrations in rat bone marrow cells. *Asian Pac J Cancer Prev*, **8**: 623–627.
- Yersal, O. dan Barutca, S., 2014. Biological subtypes of breast cancer: Prognostic and therapeutic implications. *World Journal of Clinical Oncology*, **5**: 412–424.
- Zarai, Z., Boujelbene, E., Ben Salem, N., Gargouri, Y., dan Sayari, A., 2013. Antioxidant and antimicrobial activities of various solvent extracts, piperine and piperic acid from *Piper nigrum*. *LWT - Food Science and Technology*, **50**: 634–641.
- Zhou, D., Shao, L., dan Spitz, D.R., 2014. Reactive Oxygen Species in Normal and Tumor Stem Cells. *Advances in cancer research*, **122**: 1–67.