

DAFTAR PUSTAKA

- Amalina, N.D., Nurhayati, I.P., Meiyanto, E, 2017, Doxorubicin induces lamellipodia formation and cell migration, *I. J. C. C.*, **8**(2), p61-67.
- Atun, S., Arianingrum, R. & Masatake, N, 2007, Some Phenolic Compounds from Stem Bark of Melinjo (*Gnetum gnemon*) and Their Activity Test as Antioxidant and UV-B Protection, *JSChem-ITB-UKM*.
- Ayuningtyas, I.N., Rahmawati, M., Sutriyo, Mun'im, A, 2017, Optimization of Ionic Liquid-Based Microwave Assisted Extraction to Obtain Trans-resveratrol from *Gnetum gnemon* L. Seeds. *J. Young Pharm.*, **9**(4), 457-462.
- Azwanida, N.N., 2015, A review on the extraction methods use in medicinal plants, principle, strength and limitation, *Med Aromat Plants*, **4**, 196.
- Bai, X., Li, Y., Zhang, H., Wang, F., He, H., Yao, J., Liu, L., Li, S., Role of matrix metalloproteinase-9 in transforming growth factor- β 1-induced epithelial-mesenchymal transition in esophageal squamous cell carcinoma, *Onco. Targets Ther.*, **10**, 2837-2847.
- Bailey-Downs, L.C., Thorpe, J.E., Disch, B.C., Bastian, A., Hauser, P.J., Farasyn, T., Berry, W.L., Hurst, R.E., Ihnat, M.A, 2014, Development and Characterization of a Preclinical Model of Breast Cancer Lung Micrometastatic to Macrometastatic Progression, *PloS One.*, **9** (5), E98624.
- Bandyopadhyay, A., Wang, L., Agyin, J., Tang, Y., Lin, S., Yeh, I., De, K., Sun, L., 2010, Doxorubicin in Combination with a Small TGF β Inhibitor A Potential Novel Therapy for Metastatic Breast Cancer in Mouse Models, *PloS One.*, **5**(4), e10365.
- Beslija, S., Bonnetterre, J., Burstein, H.J., Cocquyt, V., Gnant, M., Heinemann, V., Jassem, J., Köstler, W.J., Krainer, M., Menard, S. T.P., Petryzelka, L., Possinger, K., Schmid, P., Stadtmauer, E., Stockler, M., Belle, S.V., Vogel, C., Wilcken, N., Wiltshcke, C., Zielinski, C.C., 2009, Third consensus on medical treatment of metastatic breast cancer, *Annals of Oncology.*, **20**(11), 1771-1785.
- Bi, X.L., Yang, J.Y., Dong, Y.X., Wang, J.M., Cui, Y.H., Ikeshima, T., Zhao, Y.Q., Wu, C.F., 2005, Resveratrol inhibits nitric oxide and TNF- α production by lipopolysaccharide-activated microglia, *Int. Immunopharmacol.*, **5**(1), 185-193.
- Bond, M., Chase, A.J., Baker, A.H., Newby, A.C., 2001, Inhibition of transcription factor NF-kappaB reduces matrix metalloproteinase-1, -3 and -9 production by vascular smooth muscle cells, *Cardiovasc. Res.*, **50**(3), 556-565.

- Cahyana A.H., & Ardiansah, B., 2016, Antioxidative and cytotoxic effects of prenylated stilbene derivative-rich Melinjo (*Gnetum gnemon* L.) fruit rind. *International Symposium on Current Progress in Mathematics and Sciences*.
- Chen, B., Liu, J., Ho, T-T., Ding, X., Mo-Y-Y., 2016, ERK-mediated NF- κ B activation through ASIC1 in response to acidosis, *Oncogenesis*, **5**(12), e279.
- Chen, P.N., Hsieh, Y.S., Chiou, H.L., Chu, S.C., 2005, Silibinin inhibits cell invasion through inactivation of both PI3K-Akt and MAPK signaling pathways, *Chem.-Biol. Interact.*, **156**, 141-150.
- Cho, A., Graves, J., Reidy, M.A., 2000, Mitogen-Activated Protein Kinases Mediate Matrix Metalloproteinase-9 Expression in Vascular Smooth Muscle Cells, *Arterioscler. Thromb. Vasc. Biol.*, **20**(12), 2527-2532.
- Cho, Y.B., Lee, W.Y., Song, S.Y., Shin, H.J., Yun, S.H., Chun, H.K., 2007, Matrix metalloproteinase-9 Activity is Associated with Poor Prognosis in T3-T4 Node-negative Colorectal Cancer, *Hitman Pathology*, **38**, 1603-1610.
- Christian Reichardt, 2003, *Solvents and Solvents Effects in Organic Chemistry*, 3rd Ed, Wiley-VCH Publishers, Germany.
- De Angelis P.M., Svendsrud, D.H., Kravik, K.L., Stokke, T., 2006, Cellular response to 5-fluorouracil (5-FU) in 5-FU-resistant colon cancer cell lines during treatment and recovery, *Mol Cancer*, **5** (20).
- Dent, R., Hanna, W.H., Trudeau, M., Rawlinson, E., Sun, P., Narod, S.A., 2009, Pattern of metastatic spread in triple-negative breast cancer, *Breast Cancer Res Treat.*, **115**, 423-428.
- Departemen Kesehatan Republik Indonesia, 2008, Farmakope Herbal Indonesia Edisi I, Departemen Kesehatan Republik Indonesia, Jakarta.
- Dhawan, P. & Richmond, A., 2002, A Novel NF- κ B-inducing Kinase-MAPK Signaling Pathway Up-regulates NF- κ B Activity in Melanoma Cells, *J. Biol. Chem.*, **277**(10), 7920-7928.
- Dupré, S.A., Redelman, D., Hunter, K.W., 2007, The mouse mammary carcinoma 4T1: characterization of the cellular landscape of primary tumours and metastatic tumour foci, *Int J Exp Pathol.*, **88** (5), 351-360.
- Fang, Y., Cao, Z., Hou, Q., Ma, C., Chunsuo, Y., Li, J., Wu, X-R., Huang, C., 2013, Cyclin D1 Downregulation Contributes to Anti-Cancer Effect of Isorhapontigenin (ISO) on Human Bladder Cancer Cells, *Mol. Cancer Ther.*, **12**(8), 1492-1503.
- Fang, Y., Yu, Y., Hou, Q., Zheng, X., Zhang, M., Zhang, D., Li, J., Wu, X.R., Huang, C., 2012, The Chinese herb isolate isorhapontigenin induces

apoptosis in human cancer cells by down-regulating overexpression of antiapoptotic protein XIAP, *J. Biol. Chem.*, **287**(42), 35234-35243.

Gewirtz, D.A., 1999, A critical evaluation of the mechanisms of action proposed for the antitumor effects of the anthracycline antibiotics adriamycin and daunorubicin, *Biochem. Pharmacol.*, **57**(7), 727-741.

Gilmore, T.D., 2006, Introduction to NF- κ B players, pathways, perspectives. *Oncogene.*, **25**(51), 6680-6684.

Goldhirsch A., Wood, W.C., Coates, A.S., Gelber R.D., Thürlimann, B., Senn, H.J., Panel members, 2011, Strategies for subtypes-dealing with the diversity of breast cancer: Highlights of the St Gallen international expert consensus on the primary therapy of early breast cancer, *Ann Oncol.*, **22**, 1736-1737.

Gondi, C.S. & Rao, J.S., 2009, Therapeutic potential of siRNA-mediated targeting of urokinase plasminogen activator, its receptor, and matrix metalloproteinases, *Methods in Molecular Biology.*, **487**, 267-281.

Guan, X., 2015, Cancer metastases : challenges and opportunities. *Acta. Pharm. Sin. B.*, **5** (5), 402-418.

Hemann, M.T., & Lowe, S.W., 2006, The p53-Bcl-2 connection, *Cell Death and Differentiation*, **13**, 1256-1259.

Iliya, I., Ali, Z., Tanaka, T., Iinuma, M., Furusawa, M., Nakaya, K., Murata, J., Darnaedi, D., Matsuura, N., Ubukata, M., 2003, Stilbene derivatives from *Gnetum gnemon* Linn, *Phytochemistry.*, **62** (4), 601-606.

Inwald, E.C., Klinkhammer-Schalke, M., Hofstädter, F., Zeman, F., Koller, M., Gerstenhauer, M., Ortmann, O., 2013, Ki-67 is a prognostic parameter in breast cancer patients: results of a large population-based cohort of a cancer registry, *Breast Cancer Res Treat.*, **139** (2), 539-552.

Jiang, G., Wu, A.D., Huang, C., Gu, J., Zhang, L., Huang, H., Liao, X., Li, J., Zhang, D., Zheng, X., Jin, H., Huang, H., Huang, C., Isorhapontigenin (ISO) Inhibits Invasive Bladder Cancer Formation In Vivo and Human Bladder Cancer Invasion In Vitro by Targeting STAT1/FOXO1 Axis, *Cancer Prev. Res. (Phila.)*, **9**(7), 567-580.

Jinga, D.C., Blidaru, A., Condrea, I., Ardeleanu, C., Dragomir, C., Szegli, G., Stefanescu, M., Matache, C., 2006, MMP-9 and MMP-2 gelatinases and TIMP-1 and TIMP-2 inhibitors in breast cancer: correlations with prognostic factors, *J. Cell. Mol. Med.*, **10** (2), 499-510.

Kato, E., Tokunaga, Y. & Sakan, F., 2009, Stilbenoids Isolated from the Seeds of Melinjo (*Gnetum gnemon* L.) and Their Biological Activity, *J. Agric. Food Chem.*, **57**, 2544-2549.

- Kato, H., Samizo, M., Kawabata, R., Takano, F., Ohta, T., 2011, Stilbenoids from the Melinjo (*Gnetum gnemon* L.) Fruit Modulate Cytokine Production in Murine Peyer's Patch Cells *Ex Vivo*, *Planta Med.*, **77**, 1027-1034.
- Kang, Y., 2007, New Tricks Against an Old Foe: Molecular Dissection of Metastasis Tissue Tropism in Breast Cancer, *Breast Disease.*, **26**, 129-138.
- Khoriyah, S., Hanapi, A., Fasya, G., 2014, Uji fitokimia dan aktivitas antibakteri fraksi etil asetat, kloroform dan petroleum eter ekstrak metanol alga coklat *Sargassum vulgare* dari pantai kapong pamekasan madura, *Alchemy*, **3** (2), 133-144.
- Kim, S.J. & Gweon, E.J., 2013, Resveratrol induces MMP-9 and cell migration via the p38 kinase and PI-3K pathways in HT1080 cells, *Life Sci.*, **88**, 826-834.
- Kim, Y.S., Sull, J.W., Sung, H.J., 2012, Suppressing effect of resveratrol on the migration and invasion of human metastatic lung and cervical cancer cells. *Mol. Biol. Rep.*, **39**(9), 8706-8716.
- Kunarto, B., 2014, Skrining Fitokimia Ekstrak Etanolik Kulit Melinjo (*Gnetum gnemon* L) Varietas Ketan dan Aktivitas Antioksidannya setelah Dienkapasulasi, *TEKNOLOGI Pangan dan Hasil Pertanian*, **11** (1), 15-20.
- Kunimasa, K., Ohta, T., Tani, H., Kato, E., Eguchi, R., Kaji, K., Ikeda, K., Mori, H., Mori, M., Tatefuji, T., Yamori, Y., 2011., Resveratrol derivative-rich melinjo (*Gnetum gnemon* L.) seed extract suppresses multiple angiogenesis-related endothelial cell functions and tumor angiogenesis., *Mol. Nutr. Food. Res.*, **55**, 1730-1734.
- Lee, H.S., Ha, A.W., Kim, W.K., 2012, Effect of resveratrol on the metastasis of 4T1 mouse breast cancer cells in vitro and in vivo, *Nutr Res Pract.*, **6** (4), 294-300.
- Liang, C.C., Park, A.Y., Guan, J.L., 2007, In vitro scratch assay: a convenient and inexpensive method for analysis of cell migration in vitro, *Nat. Protoc.*, **2** (2), 329-333.
- Limm, L.Y., Vidnovic, N., Ellisen, L.W., Leong, C-O., 2009, Mutant p53 mediates survival of breast cancer cells, *Br. J. Cancer.*, **101**(9), 1606-1612.
- Lin Chen, J., Zhang J., Huan, X-Y., 2008, cAMP inhibits cell migration by interfering with Rac-induced Lamellipodium formation, *J. Biol. Chem.*, **283** (20), 13799-13805.
- Liu, Z., 2008, Preparation of Botanical Samples for Biomedical Research, *Endocr Metab Immune Disord Drug Targets.*, **8**(2), 112-121.
- Lu, D.-Y., Lu, T.-R., Wu, H.-Y., 2013, New insights into individualized antimetastatic therapy, *Adv. Tech. Biol. Med.*, **1**, 1.

- Mosmann, T., 1983, Rapid colorimetric assay for cellular growth and survival: application to proliferation and cytotoxicity assays. *J. Immunol. Methods.*, **65**, 55-53.
- Neophytou, C., Boutsikos, P., Papageorgis, P., 2018, Molecular Mechanism and Emerging Therapeutic Targets of Triple-Negative Breast Cancer Metastasis, *Front Oncol.*, **8**, 31.
- Narayanan, N.K., Kunimasa, K., Yamori, Y., Mori, M., Mori, M., Nakamura, K., Miller, G., Manne, U., Tiwari, A.K., Narayanan, B., 2015, Antitumor activity of melinjo (*Gnetum gnemon* L.) seed extract in human and murine tumor models in vitro and in a colon-26 tumor-bearing mouse model in vivo, *Cancer Med.*, **4** (11), 1767-1780.
- Oh, Y.C., Kang, O.H., Choi, J.G., Chae, H.S., Lee, Y.S., Brice, O.O., Jung, H.J., Hong, S.H., Lee, Y.M., Kwon, D.Y., 2009, Anti-inflammatory effect of resveratrol by inhibition of IL-8 production in LPS-induced THP-1 cells, *Am. J. Chin. Med.*, **37**(6), 1203-1214.
- Ota, H., Akishita, M., Tani, H., Tatefuji, T., Ogawa, S., Iijima, K., Eto, M., Shirasawa, T., Ouchi, Y., 2013, trans-Resveratrol in *Gnetum gnemon* protects against oxidative-stress-induced endothelial senescence, *J. Nat. Prod.*, **76**(7), 1242-1247.
- Parri, M. & Chiarugi, P., 2010, Rac and Rho GTPases in cancer cell motility control, *Cell Communication and Signaling*, **8**, 23.
- Pozo-Guisado, E., Merino, J.M., Mulero-Navarro, S., Lorenzo-Benayas, M.J., Centeno, F., Alvarez-Barrientos, A., Fernandez-Salguero, P.M., 2005, Resveratrol-induced apoptosis in MCF-7 human breast cancer cells involves a caspase-independent mechanism with downregulation of Bcl-2 and NF-KappaB, *Int. J. Cancer.*, **115**(1), 74-84.
- Pulaski, B.A. & Ostrand-Rosenberg, S., 2001, Mouse 4T1 Breast Tumor Model. *Curr. Protoc. Immunol.*, **20** (20.2).
- Rahmawati, Y., Setyawati, Y., Widodo, I., Ghazali, A., 2018, Molecular Subtypes of Indonesian Breast Carcinomas - Lack of Association with Patient Age and Tumor Size, *Asian Pac. J. Cancer Prev.*, **199**(1), 161-166.
- Riss TL, Moravec, R.A., Niles, A.L., Sarah, D.M.S., Benink, H.A., Worzella, T.J., Minor, L., 2016, Cell Viability Assays, <https://www.ncbi.nlm.nih.gov/books/NBK144065/>, 10 Juni 2018
- Rutala dan Weber, 2008, Healthcare Infection Control Practices Advisory Committee. Guideline for disinfection and sterilization in healthcare facilities, <https://www.cdc.gov/infectioncontrol/pdf/guidelines/disinfection-guidelines.pdf>, 9 Juni 2018

- Scully, O.J., Bay, B.H., Yip, G., Yu, Y., 2012, Breast Cancer Metastasis, *Cancer Genomics Proteomics.*, **9**(5), 311-320.
- Singh, M., McKenzie, K., Ma, X., 2017, Effect of dimethyl sulfoxide on in vitro proliferation of skin fibroblast cells, *Journal of Biotech Research.*, **8**, 78-82.
- Steeg, P.S., 2003, Metastasis suppressors alter the signal transduction of cancer cells, *Nature Reviews Cancer.*, **3**, 55-63.
- Suh, J., Kim, D.H., Surh, Y.J., 2018, Resveratrol suppresses migration, invasion and stemness of human breast cancer cells by interfering with tumor-stromal cross-talk, *Arch. Biochem. Biophys.*, **643**, 62-71.
- Sztalmachova M., Gumulec, J., Raudenzka, M., Polanska, H., Holubova, M., Balvan, J., Hudcova, K., Knopfova, L., Kizek, R., Adam, V., Babula, P., Masarik, M., 2015, Molecular response of 4T1-induced mouse mammary tumours and healthy tissues to zinc treatment, *Int. J. Oncol.*, **46**, 1810-1818.
- Tao, K., Fang, M., Alroy, J., Sahagian, G.G., 2008, Imagable 4T1 model for the study of late stage breast cancer, *BMC Cancer.*, **8**, 228.
- Tang, F-Y., Su, Y-C., Chen, N-C., Hsieh, H-S., Chen, K-S., 2008, Resveratrol inhibits migration and invasion of human breast-cancer cells, *Mol. Nutr. Food Res.*, **52**, 683-691.
- Tani, H., Hikami, S., Iizuna, S., Yoshimatsu, M., Asama, T., Ota, H., Kimura, Y., Tatefuji, T., Hashimoto, K., Higaki, K., 2014, Pharmacokinetics and safety of resveratrol derivatives in humans after oral administration of melinjo (*Gnetum gnemon* L.) seed extract powder, *J. Agric. Food. Chem.*, **62** (8), 1999-2007.
- Thierauf, J., Veit, J.A., Hess, J., 2017, Epithelial-to-mesenchymal transition in the pathogenesis and therapy of head and neck cancer, *Cancers.*, **9** (7), e76.
- Tika, L.N., 2017, Potensi ekstrak etanolik biji melinjo (*Gnetum gnemon* L.) sebagai ko-kemoterapi doksorubisin melalui penghambatan migrasi sel dan penurunan ekspresi protein MMP-9 pada sel kanker payudara 4T1, *Skripsi*, Fakultas Farmasi Universitas Gadjah Mada Yogyakarta.
- Toth, M. & Fridman, R., 2001, Assessment of gelatinases (MMP-2 and MMP-9) by gelatin zymography, *Methods Mol Med.*, **57**, 1-10.
- Verigos, J., & Magklara, A., 2015, Revealing the complexity of breast cancer by next generation sequencing, *Cancers*, **7**, 2183.
- Verma, R.P. & Hansch, C., 2007, Matrix Metalloproteinases (MMP): Chemical-biological Functions and (Q)SARs, *Bioorg Med. Chem.*, **15**, 2223-2268.
- Wang, W., Goswami, S., Lapidus, K., Wells, A.L., Wyckoff, J.B., Sahai, E., Singer, R.H., Segall, J.E., Condeelis, J.S., 2004, Identification and testing of a gene

expression signature of invasive carcinoma cells within primary mammary tumors, *Cancer Res.*, **64** (23), 8585-8594.

Wang, H., Zhang, H., Tang, L., Chen, H., Wu, C., Zhao, M., Yang, Y., Chen, X. dan Liu, G., 2013, Resveratrol Inhibits TGF- β 1-Induced Epithelial-to-Mesenchymal Transition and Suppresses Lung Cancer Invasion and Metastasis, *Toxicology.*, **303**, 139-146.

Westermarck, J. & Kahari, V.M., 1999, Regulation of matrix metalloproteinase expression in tumor invasion, *Federation of American Societies for Experimental Biology Journal.*, **13**, 781-792.

WHO, 2014, *Cancer Country Profiles*, <http://www.who.int/cancer/country-profiles/en/>, 20 Oktober 2016.

Yang, Y., Yang, H.H., Hu, Y., Watson, P.H., Liu, H., Geiger, T.R., Anver, M.R., Haines, D.C., Martin, P., Green, J.E., Lee, M.P., Hunter, K.W., Wakefield, L.M., 2017, Immunocompetent mouse allograft models for development of therapies to target breast cancer metastasis, *Oncotarget.*, **8** (19), 30621-30643.

Yerlikaya, A. & Erin, N., 2008, Differential sensitivity of breast cancer and melanoma cells to proteasome inhibitor Velcade, *Int J Mol Med.*, **22** (6), 816-823.

Youliden D.R., Cramb S.M., Yip, C.H., Baade, P.D., 2014, Incidence and mortality of female breast cancer in the Asia-Pacific region, *Cancer Biol Med.*, **11**, 101-105.

Yousef, E. M., Tahir, M.R., St-Pierre, Y., Gaboury, L.A., 2014, MMP-9 expression varies according to molecular subtypes of breast cancer, *BMC. Cancer.*, **14**, 609.

Zheng, H., Takahashi, H., Murai, Y., Cui, Z., Nomoto, K., Niwa, H., Tsuneyama, K., Takano, Y., 2006, Expressions of MMP-2, MMP-9 and VEGF are closely linked to growth, invasion, metastasis and angiogenesis of gastric carcinoma, *Anticancer Res.*, **(5A)**, 3579-3583.

Zhou, W., Xu, S., Ying, Y., Zhou, R., Chen, X., 2017, Resveratrol Suppresses Growth and Migration of Myelodysplastic Cells by Inhibiting the Expression of Elevated Cyclin D1 (CCND1), *DNA Cell Biol.*, **36**(11), 966-975.

Zhu, C., Zhu, Q., Wu, Z., Yin, Y., Kang, D., Lu, S., Liu, P., 2017, Isorhapontigenin induced cell growth inhibition and apoptosis by targeting EGFR-related pathways in prostate cancer, *J. Cell Physiol.*, **232** (2), 1104-1119.