

DAFTAR PUSTAKA

- A. Nanda, J. Khanam, K.S. Das, 2016, Optimization of Preparation Method for Ketoprofen-Loaded Microspheres Consisting Polymeric Blends using Simplex Lattice Mixture Design, *Materials Science & Engineering C*.
- Abd-Elsalam, K.A., Khokhlov, A.R., 2015, Eugenol oil nanoemulsion: Antifungal activity against *Fusarium oxysporum* f. sp. *vasinfectum* and phytotoxicity on cottonseeds. *Appl. Nanosci.*, **5**, 255–265.
- Abd-Sisak MA., Daik R., Ramli S., 2017, Study On The Effect Of Oil Phase And Co-Surfactant On Microemulsion Systems. Malaysian, *Journal of Analytical Sciences* Vol **21** No 6: 1409 - 1416.
- Abdellatif F., Hassani A., 2015, Chemical composition of the essential oils from leaves of *Melissa officinalis* extracted by hydrodistillation, steam distillation, organic solvent and microwave hydrodistillation. *J. Mater. Environ. Sci.* **6** (1) 207-213.
- Abouelkassem Sh., Abdelrazeik A. B., Rakha O. M., 2015, Nanoemulsion of jojoba oil, preparation, characterization and insecticidal activity against *Sitophilus oryzae* (coleoptera: curculionidae) on wheat, *International Journal of Agriculture Innovations and Research*, **4**:72-75.
- Ahlina FN., Nugraheni N., Salsabila IA., Haryanti S., Da'i M., Meiyanto E., 2020, Revealing the Reversal Effect of Galangal (*Alpinia galanga* L.) Extract Against Oxidative Stress in Metastatic Breast Cancer Cells and Normal Fibroblast Cells Intended as a Co-Chemotherapeutic and Anti-Ageing Agent, *Asian Pacific Journal of Cancer Prevention*, **21**(1), 107-117.
- Alberts B., Johnson A., Lewis J., Morgan D., Raff M., Roberts K., Walter P., 2014, *Molecular Biology of the Cell, Sixth Edition*, Garland Scienc, pp. 1–10.
- Alma MH, Ertas M, Nitz S, dkk., 2007, Chemical composition of content of essential oil from the bud of cultivated Turkish Clove, *BioRes.*, **2**(2): 265–269.
- Altameme HJ, Hadi MY, Hameed IH., 2015, Phytochemical analysis of *Urtica dioica* leaves by fourier-transform infrared spectroscopy and gas chromatography-massspectrometry, *Journal of Pharmacognosy and Phytotherapy*, **7**(10): 238-252.
- American English, 2014, Essential oil, *Oxford English Dictionary* (online, American English ed.).
- Angraini, SM., Nugraheni, N., Meiyanto, E., Hermawan, A., 2019, Analog Curcumin, Pentagamavunon-0 (PGV-0), Induces Senescence and Increases Cytotoxic Effect of Doxorubicin on HCC 1954 Cells, *Indonesian Journal of Cancer Chemoprevention*, **10**(3), 114-121.
- Anton N., Vandamme T.F., 2011, Nano-emulsions and microemulsions: clarifications of the critical differences, *Pharm. Res.*, **28**, 978–985.
- Anuj G., Sanjay S., 2010, Eugenol: A Potential Phytochemical With Multifaceted Therapeutic Activities, *Pharmacology* **2**: 108-120.

- BabakiM., YousefiM., HabibiZ., MohammadM., 2017, Process Optimization for Biodiesel Production from Waste Cooking Oil Using Multi-Enzyme Systems Through Response Surface Methodology, *Journal of Renewable Energy*.
- Balasubramani, S., Rajendhiran, T., Moola, A.K., Kumari, R., Diana, B., 2017, Development of nanoemulsion from *Vitex negundo* L. essential oil and their efficiency of antioxidant, antimicrobial and larvicidal activities (*Aedes aegypti* L.). *Environ. Sci. Pollut. Res.*, **24**, 15125–15133.
- Bamdad F, Kadivar M, Keramat J., 2006, Evaluation of phenolic content and antioxidant activity of Iranian caraway in comparison with clove and BHT using model systems and vegetable oil, *Int J Food Sci Technol*, **41**(Suppl 1):S20–S27.
- Bhargava, K., Conti, D.S., da Rocha, S.R.P., Zhang, Y., 2015, Application of an oregano oil nanoemulsion to the control of foodborne bacteria on fresh lettuce. *Food Microbiol.*, **47**, 69–73.
- Blanco M.J., Learte A.I., Marchena M.A., Muñoz-Sáez E., Cid M.A., Rodríguez-Martín, I., Sánchez-Camacho, C., 2001, Tracing Gene Expression Through Detection of β -galactosidase Activity in Whole Mouse Embryos, *J. Vis. Cell biology. Telomere capping—one strand fits all. Science*, **292**:1075–1076.
- Brunk U., Ericsson J. L., Ponten J., Westermarck B., 1973, Residual bodies and “aging” in cultured human glia cells. Effect of entrance into phase 3 and prolonged periods of confluence, *Exp Eye Res*, **79**:1–14.
- Carey M.C, Small D.M, Bliss C.M., 1983, *Ann. Rev. Physiol*, **45**:651-77.
- Childs, B.G., Durik, M., Baker, D.J., dan Van Deursen, J.M., 2015, Cellular senescence in aging and age-related disease: From mechanisms to therapy, *Nature Medicine*, **21**: 1424–1435.
- Cortés-R.D.G., Fernandes de S.C.R., zaituneira, W.P., 2014, Clove (*Syzygium aromaticum*): a precious spice. *Asian Pacific Journal of Tropical Biomedicine*, **4**(2): 90-96.
- Cox, Michael M., 2015, *Molecular biology : principles and practice*, Doudna, Jennifer A., O'Donnell, Michael (Biochemist) (Second ed.), New York.
- Da Silva Gündel, S., Velho, M.C., Diefenthaler, M.K., Favarin, F.R., Copetti, P.M., de Oliveira Fogaça, A., Klein, B., Wagner, R., Gündel, A., Sagrillo, M.R., 2018, Basil oil-nanoemulsions: Development, cytotoxicity and evaluation of antioxidant and antimicrobial potential, *J. Drug Deliv, Sci, Technol*, **46**, 378–383.
- Dai, L., Li, W., Hou, X., 1997, Effect of the molecular structure of mixed nonionic surfactants on the temperature of miniemulsion formation. *Colloids Surf. A Physicochem. Eng. Asp.*, **125**, 27–32.
- Dave J. M., Bayless K. J., 2014, Vimentin as an integral regulator of cell adhesion and endothelial sprouting, *Microcirculation*, **21** (4): 333–44.
- 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, *Molecular Cancer*, **5**: 1-25.

- De Godoi, S.N., Quatrin, P.M., Sagrillo, M.R., Nascimento, K., Wagner, R., Klein, B., Santos, R.C.V., Ourique, A.F., 2017, Evaluation of stability and in vitro security of nanoemulsions containing Eucalyptus globulosoil, *Biomed Re. Int.*
- Dilworth L.L., Riley C.K., Stennett, D.K., 2017, Plant Constituents. *Pharmacognosy*, 61–80.
- Dimri, G.P., Lee, X., Basile, G., Acosta, M., Scott, G., Roskelley, C., 1995, A biomarker that identifies senescent human cells in culture and in aging skin in viv,. *Proceedings of the National Academy of Sciences*, **92**: 9363–9367.
- Dudonné S, Vitrac X, Coutière P, Woillez M, Mérillon JM, 2009, Comparative study of antioxidant properties and total phenolic content of 30 plant extracts of industrial interest using DPPH, ABTS, FRAP, SOD, and ORAC assays, *J Agric Food Chem*, **57**(5):1768–1774.
- Evans C.W., 2009, Pharmacognosy Trease and Evans, 16th Ed., *Saunders Elsevier*, London, pp. 263-356.
- FauzyaAF., Astuti RI., Mubarik NR., Effect of Ethanol-Derived Clove Leaf Extract on the Oxidative Stress Response in Yeast *Schizosaccharomyces pombe*. *Hindawi International Journal of Microbiology* Vol. **7**, 2145378.
- Fisher, G.J., 2005, The pathophysiology of photoaging of the skin, *Cutis* **75**, 5–8.
- Gülçin I, Elmastaş M, Aboul-Enein HY., 2012, Antioxidant activity of clove oil-A powerful antioxidant source, *Arab J Chem*, **5**(4):489–499.
- Gülçina İ, Şatb İG, Beydemira Ş, Elmastaş M, Küfrevioğlu Öİ., 2004, Comparison of antioxidant activity of clove (*Eugenia caryophyllata* Thunb) buds and lavender (*Lavandula stoechas* L.), *Food Chem*, **8**(3):393–400.
- Ghosh, V., Mukherjee, A., Chandrasekaran, N., 2013, Ultrasonic emulsification of food-grade nanoemulsion formulation and evaluation of its bactericidal activity, *Ultrason, Sonochem*, **20**, 338–344.
- Ghosh, V., Mukherjee, A., Chandrasekaran, N., 2014, Eugenol-loaded antimicrobial nanoemulsion preserves fruitjuice against, microbial spoilage, *Colloids Surf. B Biointerfaces.*, **114**, 392–397.
- Gorgoulis V., Adams P.D., Alimonti A., Bennett D.C., Bischof O., Bisho C., Campisi J., Collado M., Evangelou K., Ferbeyre G., Gil J., Hara E., Krizhanovsky V., Jurk D., Maier A.B., Narita M., Niedernhofer L., Passos J.F., 2019, Cellular Senescence: Defining a Path Forward, *Cell*, 179.
- Griffin, W.C., 1954, Calculation of HLB values of non-ionic surfactants. *J. Soc, Cosmet. Chem.*, **5**, 249–256.
- Hameed IH, Altameme HJ, Idan SA., 2016, Artemisia annua: Biochemical products analysis of methanolic aerial parts extract and anti-microbial capacity, *Research Journal of Pharmaceutical, Biological and Chemical Sciences*, **7**(2): 1843- 1868.

- Hitomi K., Okada R., Mun Loo T., Miyata K., Nakamura AJ., Takahashi A., 2020, DNA Damage Regulates Senescence-Associated Extracellular Vesicle Release via the Ceramide Pathway to Prevent Excessive Inflammatory Responses, *Molecular Sciences* **21**, 3720.
- Hussein AO, Mohammed GJ, Hadi MY, Hameed IH., 2016, Phytochemical screening of methanolic dried galls extract of *Quercus infectoria* using gas chromatography-mass spectrometry (GC-MS) and Fourier transform-infrared (FT-IR), *Journal of Pharmacognosy and Phytotherapy*. **8**(3): 49-59.16.
- Itahana K., Campisi J., Dimri G. P., 2004, Mechanisms of cellular senescence in human and mouse cells, *Biogerontology* **5**:1–10.
- Itahana K., Itahana Y., Goberdhan P., Dimri, 2013, Colorimetric Detection of Senescence-Associated β Galactosidase. Cell Senescence: Methods and Protocols, *Methods in Molecular Biology*, vol. 965.
- Jenie R., Amalina ND., Ilmawati GPN., Utomo RY., Ikawati M., Khumaira A., Kato JY., Meiyanto E., 2019, Cell Cycle Modulation of CHO-K1 Cells Under Genistein Treatment Correlates with Cells Senescence, Apoptosis and ROS Level but in a Dose-Dependent Manner, *Advanced Pharmaceutical Bulletin*, **9**(3), 453-461.
- Jirovetz L., Buchbauer G., Stoilova I., Stoyanova A., Krastanov A., Schmidt E., Chemical Composition and Antioxidant Properties of Clove Leaf Essential Oil, *J. Agric. Food Chem.*, **54**, 6303–6307 6.
- Kapadiya S, Desai MA., 2017, Isolation of essential oil from buds of *Syzygium aromaticum* (L.) Merr. & Perry) using hydrodistillation: multi-response optimization and predictive modelling, *IJARSE*.
- Keshani S., Chuah A.L., Nourouzi M.M., Russly A.R., Jamilah B., 2010, Optimization of Concentration Process on Pomelo Fruit Juice Using Simplex Lattice Design, *International Food Research Journal*, vol **17**, hal. 733–742.
- Khalil AA., Rahman U., Khan MR., Sahar A., Mehmoodac T., Khan M., 2017, Essential oil eugenol: sources, extraction techniques and nutraceutical perspectives, *The Royal Society of Chemistry* **7**, 32669–32681.
- Khan, I., Bahuguna, A., Kumar, P., Bajpai, V.K., Kang, S.C., 2018, In vitro and in vivo antitumor potential of carvacrol nanoemulsion against human lung adenocarcinoma A549 cells via mitochondrial mediated apoptosis. *Sci.Rep.*, **8**, 144.
- Kuilman T., Michaloglou C., Mooi W. J., Peeper D. S., 2010, The essence of senescence, *Genes Dev* **24**(22): 2463–2479.
- Kurz D. J., Decary S., Hong Y., Erusalimsky J. D., 2000, Senescence-associated (beta)-galactosidase reflects an increase in lysosomal mass during replicative ageing of human endothelial cells, *J Cell Sci.*, **113**(Pt 20):3613–3622.
- Lawrence, M.J., Rees, G.D., 2012, Microemulsion-based media as novel drug delivery systems, *Adv. Drug Deliv.Rev.*, **64**, 175–193.
- Lee, Myeong Soo., Choi, Jiae Choi., 2012, Aromatherapy for health care: an overview of systematic reviews, *Maturitas* **3** (71): 257–260.

- Lee B. Y., Han J. A., Im J. S., Morrone A., Johung K., Goodwin E. C., Kleijer W. J., DiMaio D., Hwang E. S., 2006, Senescence-associated beta-galactosidase is lysosomal beta-galactosidase, *Aging Cell* **5**:187–195.
- Lee YR., Cho HM., Park EJ., Zhang M., Doan TP., Lee BW., Cho KA., Oh WK., 2020, Metabolite Profiling of Rambutan (*Nephelium lappaceum* L.) Seeds Using UPLC-qTOF-MS/MS and Senomorphic Effects in Aged Human Dermal Fibroblasts, *Nutrients* **2**, 12(5), 1430.
- Lestari TU., Martien R., Ariyadi B., Dono ND., Zuprizal, 2018, Self-nanoemulsifying drug delivery system (SNEDDS) of *Amomum compactum* essential oil: Design, formulation, and characterization. *Journal of Applied Pharmaceutical Science* Vol. **8**(06), pp 014-021.
- Li Z., Cai M., Liu Y., Sun P., 2018, Development of finger citron (*Citrus medica* L. var. *sarcodactylis*) essential oil loaded nanoemulsion and its antimicrobial activity, *Food Control*, **94**:317–323.
- Lv G., Wang F., Cai W., Zhang X., 2014, Characterization of the addition of lipophilic Span 80 to the hydrophilic Tween 80 stabilized emulsions, *Colloids Surf. Physicochem. Eng. Aspects*, **447**, pp. 8-13.
- Mahdi E.S., Sakeena M.H., Abdulkarim M.F., Abdullah G.Z., Sattar M.A., Noor A. M., 2011, Effect of surfactant and surfactant blends on pseudoternary phase diagram behavior of newly synthesized palm kernel oil esters, *Drug Des. Dev. Ther.*, **5**, p. 311.
- Majeed, H.; Liu, F.; Hategkimana, J.; Sharif, H. R.; Qi, J.; Ali, B.; Bian, -Y.-Y.; Ma, J.; Yokoyama, W.; Zhong, F., 2016, Bactericidal Action Mechanism of Negatively Charged Food Grade Clove Oil Nanoemulsions. *Food Chemistry*, **197**, 75–83.
- Malaquin N., Vercamer C., Bouali F., Martien S., Deruy E., Wernert N., Chwastyniak M., Pinet F., Abbadie C., Pourtier A., 2013, Senescent fibroblasts enhance early skin carcinogenic events via a paracrine MMP-PAR-1 axis, *PLoS One*, **8**(5):e63607.
- Mazarei, Z., Rafati, H., 2019, Nanoemulsification of *Satureja khuzestanica* essential oil and pure carvacrol, comparison of physicochemical properties and antimicrobial activity against food pathogens, *LWT*, **100**, 328–334.
- Mbaveng, A.T., Kuete, V., 2017, *Syzygium aromaticum*, *Medicinal Spices and Vegetables from Africa*.
- McHugh D., Gil Jesus, 2017, Senescence and aging: Causes, consequences, and therapeutic avenues, *The Journal of Cell Biology*, Vol. **217** No. 1 65-77.
- McClements, D.J., Rao, J., 2011, Food-grade nanoemulsions: Formulation, fabrication, properties, performance, biological fate, and potential toxicity, *Crit. Rev. Food Sci. Nutr*, **51**, 285–330.
- Meiyanto E, Larasati YA, 2019, The chemopreventive activity of Indonesia medicinal plants targeting on Hallmarks of Cancer., *Adv Pharm Bull*, **9**, 219–30.

- Meiyanto, E., Putri, H., Larasati, YA., Utomo, RY., Jenie, RI., Ikawati, M., Lestari, B., Kato, NY., Nakamae, I., Kawaichi, M., Kato, JY., 2019, Anti-proliferative and Anti-metastatic Potential of Curcumin Analogue, Pentagamavunon-1 (PGV-1), Toward Highly Metastatic Breast Cancer Cells in Correlation with ROS Generation, *Advanced Pharmaceutical Bulletin*, **9**(3), 445-452.
- Meneses A.C., Sayer C., Puton B.M.S., Cansian R.L., Oliveira P.H.H.A.D., 2019, Production of clove oil nanoemulsion with rapid and enhanced antimicrobial activity against gram - positive and gram - negative bacteria, *Journal of Food Process Engineering*, Vol. **42**. Issue 6.
- Mosmann T., 1983, Rapid colorimetric assay for cellular growth and survival: Application to proliferation and cytotoxicity assays, *Journal of Immunological Methods*, **65**, 55-63.
- Muzaffar, F., Singh, U.K., Chauhan, L., 2013, Review on microemulsion as futuristic drug delivery, *Int. J. Pharm. Pharm. Sci.*, **5**, 39–53.
- Neveu, V., Perez-Jime'nez1, J., Vos1, F., Crespy1, V., Chaffaut2, L. du., Mennen, L., Knox, C., Eisner, R., Cruz, J., Wishart, D., Scalbert1, A., 2010, Phenol-Explorer: an online comprehensive database on polyphenol contents in foods, *Oxford University Press*, bap024.
- Nugraheni N., 2019, Aktivitas Anti-Senescence Minyak Atsiri Merica Hitam (*Piper Nigrum* L.) Pada Sel CHO-K1 dan Sel NIH-3T3, *Skripsi*, S.Far., Universitas Gadjah Mada, Yogyakarta.
- Pandey, A., Singh, P., 2011, Antibacterial activity of *Syzygium aromaticum* (L.) Merr. & Perry)(clove) with metal ion effect against food borne pathogens, *Asian J. Plant Sci. Res.*, **1** (2), 69–80.
- Pavoni L., Perinelli DR., Bonacucina G., Cespi M., Palmieri GF., 2020, An Overview of Micro- and Nanoemulsions as Vehicles for Essential Oils: Formulation, Preparation and Stability, *Nanomaterials* **10** (1): 135.
- Pérez-Jiménez J, Neveu V, Vos F, Scalbert A., 2010, Identification of the 100 richest dietary sources of polyphenols: an application of the phenol-explorer database, *Eur J Clin Nutr*, **64**(Suppl 3):S112–S120.
- Piegari, E., Angelis, A. De, Cappetta, D., Russo, R., dan Rossi, F., 2013, Doxorubicin induces senescence and impairs function of human cardiac progenitor cell, *Basic research in cardiology*, **108**(2), 334.
- Posadzki, P., Alotaibi, A., Ernst, E., 2012, Adverse effects of aromatherapy: A systematic review of case reports and case series, *The International Journal of Risk & Safety in Medicine* **24** (3): 147–61.
- Prajapati S. D., Patel D.L., 2009, Floating Matrix Tablets of Domperidone: Formulation And Optimization using Simplex Lattice Design, *Thai J. Pharm. Sci.*, vol. **33**, hal. 113-122.
- Prashar A, Locke IC, Evans, CS, 2006, Cytotoxicity of clove (*Syzygium aromaticum*) oil and its major components to human skin cells, *Cell Prolif.*, **39**: 241–248.
- Prayong, P., Barusrux, S., dan Weerapreeyakul, N., 2008, Cytotoxic activity screening of some indigenous Thai plants. *Fitoterapia*, **79** (7-8), 598–601.

- Purwanti N, Zehna AS, Pusfitasaric ED, Khalid N, Febriantof EY, Mardjana SS, Andreasc, Kobayashi I., 2015, Emulsion stability of clove oil in chitosan and sodium alginatematrix, *International Journal of Food Properties*, Vol. **21**, No. 1, 566–581.
- Raissi S., Farzani R.E., 2009, Statistical Process Optimization Through Multi-Response Surface Methodology, World Academy of Science, *Engineering and Technology*, hal.267–271.
- Rassem HHA., Nour AH., Yunus RM., 2016, Techniques For Extraction of Essential Oils From Plants: A Review, *Australian Journal of Basic and Applied Sciences*, **10**(16), 117-127.
- Reeds, P. J., 2000, Dispensable and indispensable amino acids for humans, *The Journal of Nutrition* **130** (7): 1835S–40S.
- Robbins E., Levine E. M., Eagle H., 1970, Morphologic changes accompanying senescence of cultured human diploid cells, *J. Exp. Med.*, **131**:1211–1222.
- Rodriguez O., Sanchez R., Verde M., Nunez M., Rios R., Chavez A., 2014, Obtaining the essential oil of *Syzygium aromaticum*, identification of eugenol and its effect on *Streptococcus mutans*, *Journal of Oral Research* **3**(4):218-224.
- Safrudin I., Maimulyanti A., Prihadi A. R., 2015, Effect of crushing of clove bud (*Syzygium aromaticum*) and distillation rate on main constituents of the essential oil, *American Journal of Essential Oils and Natural Products*, **2** (3): 12-15.
- Rowe, R.C., Sheskey, P.J., dan Quinn, M.F., 2009, Handbook of Pharmaceutical Excipients, 6th ed., *Pharmaceutical Press*, London.
- Sagiri S.S., Behera B., Sudheep T., Pal K., 2012, Effect of composition on the properties of tween-80span-80based organogels, *Monomers Polym.*, **15**, pp. 253-273.
- Salvia-Trujillo, L., Soliva-Fortuny, R., Rojas-Graü, M.A., McClements, D.J., Martin-Belloso, O., 2017, Edible nanoemulsions as carriers of active ingredients: A review. *Annu. Rev. Food Sci. Technol.*, **8**, 439–466.
- Sarker A., Shimu IJ., Tuhin MRH., Raju AA., 2015, Nanoemulsion: An excellent mode for delivery of poorly soluble drug through different routes, *Journal of Chemical and Pharmaceutical Research*, **7**(12):966-976.
- Schwartz, E., Cruickshank, F.A., Christensen, C.C., Perlish, J.S. and Lebowitz, M., 1993, Collagen alterations in chronically sun-damaged human skin, *Photochem. Photobiol.*, **58**, 841–844.
- Seibert, J.B., Rodrigues, I.V., Carneiro, S.P., Amparo, T.R., Lanza, J.S., Frézard, F.J.G., de Souza, G.H.B., Santos, O.D.H., 2019, Seasonality study of essential oil from leaves of *Cymbopogon densiflorus* and nanoemulsion development with antioxidant activity, *Flavour Fragr. J.*, **34**, 5–14.
- Serrano M., Lin A. W., McCurrach M. E., Beach D., Lowe S. W., 1997, Oncogenic ras provokes premature cell senescence associated with accumulation of p53 and p16INK4a, *Cell* **88**:593–602.

- Ševčíková P., Vltavská P., Kašpárková V., Krejčí J., 2011, Formation, Characterization and Stability of Nanoemulsions Prepared by Phase Inversion. In: Demiralp M., Bojkovic Z., Repanovici A., editors. Proceedings of the 13th WSEAS International Conference on Mathematical and Computational Methods in Science and Engineering; Catania, Sicily, Italy, Zografou, Athens, Greece, World Scientific and Engineering Academy and Society (WSEAS).
- Sevcíková P., Kaspárková V., Vltavská P., Krejčí J., 2012, On the preparation and characterization of nanoemulsions produced by phase inversion emulsification, *Colloids Surf. A Physicochem. Eng. Asp.*, **410**:130–135.
- Shah P., Bhalodia D., Shelat, P., 2010, Nanoemulsion: A pharmaceutical review, *Systematic Reviews in Pharmacy*, **1**(1), 24.
- Shahavia, M.H., Hosseinia, M., Jahanshahia, M., Meyerb, R.L., Darzia, G.N., 2015, Clove oil nanoemulsion as an effective antibacterial agent: Taguchi optimization method, *Balaban Desalination Publications*, 18379–18390.
- Shakeel F., Ramadan W., 2010, Transdermal delivery of anticancer drug caffeine from water-in-oil nanoemulsions, *Colloids Surf. B Biointerfaces*, **75**:356–362.
- Shaker DS., Ishak RA., Ghoneim A., Elhuoni MA., 2019, Nanoemulsion: A Review on Mechanisms for the Transdermal Delivery of Hydrophobic and Hydrophilic Drugs. *Sci. Pharm.* **87**(3), 17.
- Shan B, Cai YZ, Sun M, Corke H., 2005, Antioxidant capacity of 26 spice extracts and characterization of their phenolic constituents, *J Agric Food Chem*, **53**(20):7749–7759.
- Sharma B., Sharma A., Arora S., Gupta S., Bishnoi M., 2012, Formulation, optimization and evaluation calcium loaded microemulsion, *Journal of Pharmaceutics and Drug Delivery Research*, **1**:1-7.
- Shiloh Y., 2003, ATM and related protein kinases: safeguarding genome integrity, *Nat Rev Cancer*(**3**), 155-168.
- Shrivastava, K., Sahu, S., Mishra, S., De, K., 2014, In vitro antimicrobial activity and phytochemical screening of *Syzygium aromaticum*, *Asian J. Res. Pharm. Sci.*, **4** (1), 12–15.
- Siqueira L.B.O., Matos A.P.D.S., Cardoso V. S., Villanova J.C.O., Guimarães B.C.L.R., Santos E.P.D., Vermelho A.B., Oliveira R.S., Junior E.R., 2019, Clove oil nanoemulsion showed potent inhibitory effect against *Candida* spp., *Nanotechnology*, **18**:30(42):425101.
- Sonti S., Makino ET., Garruto JA., Gruber JV., Rao S., Mehta RC., 2012, Efficacy of a Novel Treatment Serum in the Improvement of Photodamaged Skin.
- Sosa AA, Bagi SH, Hameed IH., 2016, Analysis of bioactive chemical compounds of *Euphorbia lathyris* using gas chromatography-mass spectrometry and fourier transform infrared spectroscopy, *International Journal of Pharmacognosy and Phytochemical Research*, **8**(5): 109-126.

- Srivastava AK, Srivastava SK, Syamsundar KV, 2005, Bud and leaf essential oil composition of *Syzygium aromaticum* from India and Madagascar, *Flavour Fragr J.*, **20**: 51–53.
- Sugumar, S., Clarke, S.K., Nirmala, M.J., Tyagi, B.K., Mukherjee, A., Chandrasekaran, N., 2014, Nanoemulsion of eucalyptus oil and its larvicidal activity against *Culex quinquefasciatus*. *Bull. Entomol. Res.*, **104**, 393–402.
- Suryanti V., Wibowo F. R., Khotijah S., Andalucki N., Antioxidant Activities of Cinnamaldehyde Derivatives, *Conf. Ser.: Mater. Sci. Eng.* 333 012077.
- Tanu B., Harpreet K., 2016, Benefits of essential oil, *Journal of Chemical and Pharmaceutical Research*, **8**(6):143-149.
- Teo B., Basri M., Zakaria M., Salleh A., Rahman R., Rahman M. A., 2010, Potential tocopherol acetate loaded palm oil esters-in-water nanoemulsions for nanocosmeceuticals, *J. Nanobiotechno*, **1** 8:4.
- Terjung, N.; Löffler, M.; Gibis, M.; Hinrichs, J.; Weiss, J., 2012, Influence of Droplet Size on the Efficacy of Oil-In-Water Emulsions Loaded with Phenolic Antimicrobials, *Food & function*, **3**, 290–301.
- Thai Vinh TD., Minh Hien LT., Anh Dao DT., 2020, Formulation of black pepper (*Piper nigrum* L.) essential oil nano-emulsion via phase inversion temperature method, *Food Sci Nutr* **8**(4): 1741–1752.
- Thanida C., Sehanat P., Cristina M., Sabliov, 2019, Effect of Surfactant Concentrations on Physicochemical Properties and Functionality of Curcumin Nanoemulsions Under Conditions Relevant to Commercial Utilization, *Molecules*, **24**(15), 2744.
- Toutfaire M., Bauwens E., Chainiaux F.D., 2017, The impact of cellular senescence in skin ageing: A notion of mosaic and therapeutic strategies, *Biochemical Pharmacology*, Volume **142**, Pages 1-12.
- US FDA, 2007, Guidance for Industry: Concerns Related to the Use of Clove Oil as an Anesthetic for Fish, Guideline No. 150. US Food and Drug Administration Center for Veterinary Medicine, April 24, 2007, <http://www.fda.gov/cvm/Guidance/guide150.htm>.
- Wan J., Zhong S., Schwarz P., Chen B., Rao J., 2018, Influence of oil phase composition on the antifungal and mycotoxin inhibitory activity of clove oil nanoemulsions. *Food Funct.*, **9** 2872-2882.
- Weissman-Shomer P, Fry M., 1975, Chick embryo fibroblasts senescence in vitro: pattern of cell division and life span as a function of cell density, *Mechanisms of Ageing and Development*, **4** (2): 159–66.
- Wenqian G, Shufen L, Ruixiang Y, dkk., 2007, Comparison of essential oils of clove buds extracted with supercritical carbon dioxide and three other traditional extraction methods, *Food Chem.*, **101**: 1558–1564.
- Yang, H., Villani, R.M., Wang, H., Simpson, M.J., Roberts, M.S., dan Tang, M., 2018, The role of cellular reactive oxygen species in cancer chemotherapy 1–10.
- Zhang S., Duan E., 2018, Fighting against Skin Aging, *Cell Transplant* **27**(5): 729-738.



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Optimasi Formula Sediaan Nanoemulsi dan Uji Aktivitas Anti-Senescence Seluler Minyak Cengkeh (*Syzygium Aromaticum* (L.) Merr. & Perry) terhadap Sel Fibroblast NIH-3T3
DHURIYATUN KHASANAH, Prof. Dr. apt. Edy Meiyanto, M.Si.

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Zulfin U.M., 2020, Efek Sitoprotektif Minyak Bekatul (*Oryza sativa* L.) terhadap Penuaan Seluler akibat Doksorubisin, *Skripsi*, S.Far., Universitas Gadjah Mada, Yogyakarta.