



Daftar Pustaka

- Abdel-Salam, F.S., Ammar, H.O., Elkheshen, S.A., dan Mahmoud, A.A., 2017. Anti-inflammatory sunscreen nanostructured lipid carrier formulations. *Journal of Drug Delivery Science and Technology*, **37**: 13–19.
- Afaq, F. dan Mukhtar, H., 2006. Botanical antioxidants in the prevention of photocarcinogenesis and photoaging. *Experimental Dermatology*, **15**: 678–684.
- Agero, A. L. C., dan Verallo-rowell., 2004. A Randomized double blind controlled trial comparing extra VCO with mineral oil as a moisturizer for mild to moderate xerosis. *Dermatitis: contact, atopic, occupational, drug*, **15**: 109–116.
- Agoes, G., 2012. *Sediaan Farmasi Liquida-Semisolida*. Cetakan Pertama. Penerbit ITB. Bandung. Hal. 149-186.
- Agrawal, M., Agrawal, Y., Itankar, P., Patil, A., Vyas, J., dan Kelkar, A., 2012. Phytochemical and HPTLC studies of various extracts of *Annona squamosa* (Annonaceae). *International Journal of PharmTech Research*, **4**: 364–368.
- Aiache, J.M., 1982. *Farmasetika 2: Biofarmasi*. Airlangga University Press, Srabaya. Hal. 156-177.
- Aisha, A.F., Abu-Salah, K.M., Ismail, Z., dan Majid, A.M.S., 2013. Determination of total xanthones in *Garcinia mangostana* fruit rind extracts by ultraviolet (UV) spectrophotometry. *Journal of Medicinal Plants Research*, **7**: 29–35.
- Akao, Y., Nakagawa, Y., dan Nozawa, Y., 2008. Anti-cancer effects of xanthones from pericarps of mangosteen. *International Journal of Molecular Sciences*, **9**: 355–370.
- Alvi, J., Madan, D., Kaushik, S., Sardana, R.S., Pandey, A., dan Ali., 2011. Comparative study of transfersomes, liposomes, and niosomes for topical delivery of 5-fluorouracil to skin cancer cells: preparation characterization, in-vitro release, and cytotoxicity analysis. *Anticancer Drugs*, **22**: 774–782.
- Amrutkar, C., Salunkhe, K.S., dan Chaudhari, S.R., 2014. Review on Self Nanoemulsifying Drug Delivery System. *American Journal of PharmTech Research*, **4**: 2249-3387.



- An, S.Y., Bui, M.-P.N., Nam, Y.J., Han, K.N., Li, C.A., Choo, J., dkk., 2009. Preparation of monodisperse and size-controlled polyethylene glycol hydrogel nanoparticles using liposome templates. *Journal of Colloid and Interface Science*, **331**: 98–103.
- Anam, S., Yusran, M., Trisakti, A., Ibrahim, N., Khumaidi, A., Ramdanil, R., dkk., 2014. Standarisasi ekstrak etil asetat kayu sanrego (*Lunasia amara Blanco*). *Natural Science: Journal of Science and Technology*, **2**: 1-8.
- Ansel, H.C., 1989. *Pengantar Bentuk Sediaan Farmasi*, ed 4, Penerjemah Farida Ibrahim, Universitas Indonesia Press, Jakarta. Hal.155-164.
- AOAC., 1993. *Peer verified methods program: Manual on policies and procedures*. Association of Official Analytical Chemist, Vancouver.
- Arazo, M., Bello, A., Rastrelli, L., Montelier, M., Delgado, L., dan Panfet, C., 2011. Antioxidant properties of pulp and peel of yellow mangosteen fruits. *Emirates Journal of Food and Agriculture*, **23**: 517.
- Ariviani, S., Anggrahini, S., dan Naruki, S., 2015. Formulasi dan stabilitas mikroemulsi o/w dengan metode emulsifikasi spontan menggunakan VCO dan minyak sawit sebagai fase minyak: pengaruh rasio surfaktan-minyak. *Agritech*, **35**:-.
- Athawale, R., Salavkar, S., dan Tamanekar, R., 2011. Antioxidants in skin ageing - Future of dermatology. *International Journal of Green Pharmacy*, **5**: 161.
- Azeem, A., Rizwan, M., Ahmad, F.J., Iqbal, Z., Khar, R.K., Aqil, M.A., dan Talegaonkar, S., 2009. Nanoemulsion Component Screening and Selection : A Technical Note. *American Association of Pharmaceutical Scientists*, **10**: 69-76.
- Badan Pemeriksaan Obat dan Makanan., 2006. *Standarisasi ekstrak tumbuhan obat Indonesia, salah satu tahapan penting dalam pengembangan obat asli Indonesia*. Jakarta. BPOM RI. **6**: 1-14.
- Badran, M.M., Taha, E.I., Tayel, M.M., dan Al-Suwayeh, S.A., 2014. Ultra-fine self nanoemulsifying drug delivery system for transdermal delivery of meloxicam: Dependency on the type of surfactants. *Journal of Molecular Liquids*, **190**: 16–22.
- Bajpai, R., Jain, N., dan Pathak, A.K., 2012. Standarization of Ethanol extract of *Cucurbita Maxima* seed. *Journal of Applied Pharmaceutical Science*, **2**: 92-95.



- Balakumar, K., Raghavan, C.V., selvan, N.T., prasad, R.H., dan Abdu, S., 2013. Self nanoemulsifying drug delivery system (SNEDDS) of Rosuvastatin calcium: Design, formulation, bioavailability and pharmacokinetic evaluation. *Colloids and Surfaces B: Biointerfaces*, **112**: 337–343.
- Basalious, E.B., Shawky, N., Badr-Eldin, S.M., 2010. SNEDDS containing bioenhancers for improvement of dissolution and oral absorption of lacidipine: Development and optimization. *International Journal of Pharmaceutics*, **391**: 203-211.
- Bashir S.J., dan Maibach H.I., 2001. *In vivo irritation*. In: Handbook of Cosmetic Science and Technology, A.O. Barel, M. Paye, H.I. Maibach Eds., Marcel Dekker Inc., New York & Basel. Hal. 107-118.
- Baumann, L., 2005. How to Prevent Photoaging?. *Journal of Investigative Dermatology*, **125**: 1-2.
- Beg, S., Jena, S.S., Patra, C.N., Rizean, M., Swain, S., Sruti, J., dkk., 2013. Development of solid self-nanoemulsifying granules (SSNEG)s of Ondancentron hydrochloride with enhanced bioavailability potential. *Colloids and surfaces B: Biointerfaces*, **101**: 414-423.
- Benson, H.A.E., 2005. Transdermal Drug Delivery: penetration enhancement techniques. *Current Drug Delivery*, **2**: 23-33.
- Benson, A.E.H., dan Watkinson, C.A., 2012. *Transdermal and Topical Drug Delivery: Principles and Practice*, First Edition. ed. John Wiley and Sons, Inc.
- Bhat, M.A., Iqbal, M., Al-Dhfyan, A., dan Shakeel, F., 2015. Carvone Schiff base of isoniazid as a novel antitumor agent: Nanoemulsion development and pharmacokinetic evaluation. *Journal of Molecular Liquids*, **203**: 111–119.
- Bidone, J., Zorzi, G.K., Carvalho, E.L.S., Simões, C.M.O., Koester, L.S., Bassani, V.L., dkk., 2014. Incorporation of *Achyrocline satureoides* (Lam.) DC extracts into topical nanoemulsions obtained by means of spontaneous emulsification procedure. *Industrial Crops and Products*, **62**: 421–429.
- Bolton, S., 1997. *Pharmaceutical Statistics Practical and Clinical Applications*. 3rd Edition. Marcel Dekker Inc, New York. Hal. 610.
- Breuer, M.M., 1979. The interaction between surfactants and keratinous tissues. *Journal of Cosmetic Science*, **30**: 41-64.



- Cho, S., Lee, D.H., Won, C.-H., Kim, S.M., Lee, S., Lee, M.-J., dkk., 2010. Differential Effects of Low-Dose and High-Dose Beta-Carotene Supplementation on the Signs of Photoaging and Type I Procollagen Gene Expression in Human Skin *in vivo*. *Dermatology*, **221**: 160–171.
- Choi, K.-O., Aditya, N.P., dan Ko, S., 2014. Effect of aqueous pH and electrolyte concentration on structure, stability and flow behavior of non-ionic surfactant based solid lipid nanoparticles. *Food Chemistry*, **147**: 239–244.
- Chung, J.H., Hanft, V.N., dan Kang, S., 2003. Aging and photoaging. *Journal of the American Academy of Dermatology*, **49**: 690–697.
- Constantinides, P.P., dan Scalart, J.P. 1997. Formulation and physical characterization of water in oil microemulsion containing long versus medium chain glycerides. *International Journal of Pharmaceutics*, **158**: 57–68.
- Cos, P., Calomme, M., Sindambiwe, J.B., de Bruyne, T., Cimanga, K., Pieters, L., Vlietinck, A.J. dan Vanden Berghe, D., 2001. Cytotoxicity and lipid peroxidation inhibiting activity of flavonoids. *Planta Medica*, **67**: 515–519.
- Costa, J.A., Lucas, E.F., Queirós, Y.G.C., dan Mansur, C.R.E., 2012. Evaluation of nanoemulsions in the cleaning of polymeric resins. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, **415**: 112–118.
- Cserhati, T., 1995. Alkyl Ethoxylated and alkylphenol ethoxylated nonionic surfactants: Interaction with bioactive compounds and biological effects. *Environmental Health Perspect*, **103**: 358-364.
- Cunha, A.S., Grossier, J.L., Puisieux, F., dan Seiller, M., 1997. Insulin in w/o/w multiple emulsions: preparation, characterization and determination of stability towards proteases *in vitro*. *Journal of Microencapsulation*, **14**: 311–319.
- Daamen, W., Veerkamp, J., Vanhest, J., dan Vankuppeveld, T., 2007. Elastin as a biomaterial for tissue engineering. *Biomaterials*, **28**: 4378–4398.
- Date, A. dan Nagarsenker, M., 2007. Design and evaluation of self-nanoemulsifying drug delivery systems (SNEDDS) for cefpodoxime proxetil. *International Journal of Pharmaceutics*, **329**: 166–172.
- Date, A.A., Desai, N., Dixit, R., dan Nagarsenker, M., 2010. Self-nanoemulsifying drug delivery systems: formulation insights, applications and advances. *Nanomedicine*, **5**: 1595–1616.



Dean, J. 2009. *Extraction Techniques In Analytical Science*. London: John Wiley And Sons LTD. Hal. 43-46.

Departemen Kesehatan Republik Indonesia. 2000. *Parameter Standar Umum Ekstrak Tumbuhan Obat*. Jakarta: Departemen Kesehatan Republik Indonesia. Hal. 13-31.

Departemen Kesehatan. 2009. *Farmakope Herbal Indonesia*. Jakarta: Departemen Kesehatan Republik Indonesia. Hal. 22.

Direktorat Pengawasan Obat Tradisional. 2000. *Parameter standar umum ekstrak tumbuhan obat*. Jakarta: Departemen kesehatan RI. Hal.13-33.

Dixit, A.R., Rajput, S.J., Patel, S.G., 2010. Preparation and bioavailability assessment of SMEDDS containing valsartan. *American Association of Pharmaceutical Scientists*, **11**: 314–321.

Draize, J.H., 1959. *Dermal Toxicity*. The Association of Food and Drug Officials of the United State. Bureau of Food and Drugs, Austin. Hal. 46-49.

Eid, A.M., Baie, S.H., dan Arafat, O.M., 2012. The effect of surfactant blends on the production of a novel switeria macrophylla oil self-nanoemulsifying system. *International Journal of Pharmacy and Pharmaceutical Sciences*, **4**: .

Fahmy, U.A., Ahmed, O.A., dan Hosny, K.M., 2015. Development and evaluation of avanafil selfnanoemulsifying drug delivery system with rapid onset of action and enhanced bioavailability. *American Association of Pharmaceutical Scientists*, **16**: 53–58.

Fernandez, P., Andre, V., Rieger, J., dan Kuhnle, A., 2004. Nanoemulsion formation by emulsion phase inversion. *Colloids and Surfaces A: Physicochemical Engineering Aspects*, **251**: 53-58.

Figueiredo, S.A., Vilella, F.M., Silva, C.A., Cunha, T.M., Santos, M.H., dan Fonseca, M.J., 2014. In Vitro and In Vivo Photoprotective/Photochemopreventive Potential of *Garcinia brasiliensis* Epicarp Extract. *Journal of Photochemistry and Photobiology*, **131**: 65-73.

Fisher, G.J., Wang, Z.Q., Datta, S.C., Varani, J dan Kang, S., 2001. Pathophysiology of Premature Skin Aging. *England Journal of Medicine*, **337**:1419-1429.

FMIPA-UI, D.F., 2004. Petunjuk pelaksanaan validasi metode dan Cara Perhitungannya. *Majalah Ilmu Kefarmasian*, **1**: 117–135.



Gandjar, I.G., dan Rohman, A., 2009. *Kimia Farmasi Analisis*. Yogyakarta: Pustaka Pelajar. Hal. 240, 252-256; 353-355; 359-360.

Gonçalves, K.M., Polonini, H.C., Viccini, L.F., Brandão, M.A.F., dan Raposo, N.R.B., 2015. Assessment of the Photoprotective Activity of Lippia Species from Brazil and Their use as Single UV Filters in Sunscreens. *Journal of Young Pharmacists*, 7: 368–372.

Glogau, R.G.S., 2004. *Photo Aging and Aging Skin*. in: Rigel D.S. Weiss R.A., dan Linn H.W., Dover J.S. editors. Photoaging. Second edition. Canada: Maarced Decker inc. Hal. 65-73.

Graca, M., Bongaerts, J.H.H., Stokes, J.R., dan Granick, S., 2007. Friction and adsorption of aqueous polyoxyethylene (Tween) surfactants at hydrophobic surfaces. *Journal of Colloid and Interface Science*, 315: 662–670.

Griffin, B., dan O'Driscoll, C., 2011. Opportunities and challenges for oral delivery of hydrophobic versus hydrophilic peptide and protein-like drugs using lipid-based technologies. *Therapeutic Delivery*, 2: 1633–1653.

Griffits, C., Russman, A.N., Majmudar, G. dan Singer R.S., 2009. *Restoration of collagen Formation in photodamage Human Skin by Tretinoin*. Available from: URL:<http://content.nemj.org/cgi/content/full/329/8/530>.

Gunawan, D. dan Sri Mulyani. 2004. *Ilmu Obat Alam (Farmakognosi)*. Jilid I. Yogyakarta: Penebar Swadaya. Hal. 107.

Gupta, P.K., Pandit, J.K., Kumar, A., Swaroop, P., dan Gupta, S., 2010. Pharmaceutical nanotechnology novel nanoemulsion - high energy emulsification preparation, evaluation and application. *The Pharma Research*, 3: 117-138.

Gupta, R.K., Srinivasan, M.P., dan Dharmarajan, R., 2011. Synthesis of short chain thiol capped gold nanoparticles, their stabilization and immobilization on silicon surface. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 390: 149–156.

Gurav, S., Deshkar, N., Gulkari, V., Duragkar, N., dan Patil, A., 2007. Free radical scavenging activity of *Polygala chinensis* Linn. *Pharmacology online*, 2: 245–253.

Haerani, H., 2010. Pemanfaatan limbah VCO (Blondo). *Media Kesehatan Masyarakat Indonesia*. Hal. 6.

Hampton Research., 2003. *Hampton Research Corp.* http://hamptonresearch.com/product_detail.aspx?sid=148&pid=153.



- Harada, K., Murakami, T., Kawasaki, E., Higashi, Y., Yamamoto, S., dan Yata, N., 1993. In vitro permeability to salicylic acid of human, rodent and shed snake skin. *Journal of Pharmacy and Pharmacology*, **4**: 414–418.
- Harborne, J.B., 1973. *Phyto Chemical Method*. Compmand and Hall London. Hal. 7-8, 49, 65, 70-72, 78, 88, 140, 156, 234.
- Harry, R.G., Harry, R.G., dan Rieger, M.M., 2000. *Harry's Cosmeticology*. New York: Chemical Publishing. Hal.745-746, 749.
- Harwans, R. K., Patra, K. C., dan Parea, S.K., 2011. Nanoemulsion as potensial vehicles for transdermal delivery of pure photopharmaceuticals and poorly soluble drug. *International Journal of Drug Delivery*, **3**: 209-218.
- Hernani, dan Raharjo, M., 2005. *Tanaman berkhasiat Antioksidan*. Penebar Swadya, Jakarta. Hal. 99.
- Ho, J.N., Lee, Y.H., Park, J.S., Jun, W.J., Kim, H.K., Hong, B.S., dkk., 2005. Protective effects of aucubin isolated from Eucommia ulmoides against UV B-induced oxidative stress in human skin fibroblasts. *Biological and Pharmaceutical Bulletin*, **28**: 1244–1248.
- Hollinger, M.A., 1995. *Pharmacology and Toxicology: Basic and Clinical Aspect*. University of California, Davis. Hal. 61-63.
- Honary, S. dan Zahir, F., 2013. Effect of Zeta Potential on the Properties of Nano-Drug Delivery Systems - A Review (Part 2). *Tropical Journal of Pharmaceutical Research*, **12**: 265-273.
- Hosny, K.M., dan Banjar, Z.M., 2013. The formulation of a nasal nanoemulsion zaleplon in situ gel for the treatment of insomnia. Expert Opinion on *Drug Delivery*, **10**: 1033–1041.
- Itoh, T., Xia, J., Magavi, R., Nishihata, T., dan Rytting, H., 1997. Use of shed snake skin as a model membrane for in vitro percutaneous penetration studies: comparison with human skin. *Pharmaceutical Research*, **7**:1042–1047.
- Jamil, A., Widjanto, H., dan Zena, R.F., 2010. *Budidaya Tanaman Manggis*. Kementerian Pertanian. Balai Pengkajian Teknologi Pertanian Riau. Hal. 35.
- Juanda, D., dan Cahyono, B., 2000. *Manggis : Budidaya dan Analisis Usaha Tani*. Kanisius. Yogyakarta. Hal. 11.



- Jung, S.K., Lee, K.W., Kim, H.Y., Oh, M.H., Byun, S., Lim, S.H., dkk., 2010. Myricetin suppresses UV B-induced wrinkle formation and MMP-9 expression by inhibiting Raf. *Biochemical Pharmacology*, **79**: 1455–1461.
- Kalra, R., Mulik, R.S., Paradkar, A.R., Mahadik, K.R., Bodhankar, K.L., dan Sharma, S., 2010. Development and characterization of micro-emulsion formulations for transdermal delivery of aceclofenac: a research. *International Journal of Drug Formulation Research*, **1**: 359–386.
- Kapoor, V.K., Dureja, J., dan Chadha, R., 2009. Herbals in the control of ageing. *Drug Discovery Today*, **14**: 992–998.
- Karim, A.A., Azlan, A., Ismail, A., Hashim, P., Gani, S.S.A., Zainudin, B.H., dkk., 2014. Phenolic composition, antioxidant, anti-wrinkles and tyrosinase inhibitory activities of cocoa pod extract. *BMC complementary and alternative medicine*, **14**: 381.
- Kassem, A., Mohsen, A.M., Ahmed, R.S., dan Essam, T.M., 2016. Self-nanoemulsifying drug delivery system (SNEDDS) with enhanced solubilization of nystatin for treatment of oral candidiasis: Design, optimization, in vitro and in vivo evaluation. *Journal of Molecular Liquids*, **218**: 219–232.
- Kim, W.-S., Park, B.-S., Park, S.-H., Kim, H.-K., dan Sung, J.-H., 2009. Antiwrinkle effect of adipose-derived stem cell: Activation of dermal fibroblast by secretory factors. *Journal of Dermatological Science*, **53**: 96–102.
- Kim, H., Cho, H., Seo, Y.-K., Kim, S., Yoon, M.Y., Kang, H., dkk., 2012^a. Inhibitory effects of sea buckthorn (*Hippophae rhamnoides* L.) seed on UV B-induced Photoaging in human dermal fibroblasts. *Biotechnology and Bioprocess Engineering*, **17**: 465–474.
- Kim, S.J., Hong, E.H., Lee, B.R., Park, M.H., Kim, J.W., Pyun, A.R., Kim, Y.J., Chang, S.Y., Chin, Y.W., dan Ko, H.J., 2012^b. α -Mangostin reduced ER stress-mediated tumor growth through autophagy activation. *Immune Network*, **12**: 253–260.
- Klatz, R., dan Goldman, R., 2003. *Anti Aging Revolution*. Third Edition. Boulevard East : Basic Health Publication. Hal. 20.
- Kligman, L.H., 1989. The ultraviolet-irradiated hairless mouse: a model for photoaging. *Journal of the American Academy of Dermatology*, **21**: 623–631.
- Kollisolv., 2011. *PEG Grade*. Pharma Ingredients. BASF. SE. Hal. 2.



Koroleva, M. Y., dan Yurtov, E. V., 2012. Nanoemulsions: the properties, methods of preparation and promising applications. *Russian Chemical Reviews*, **81**: 21-43.

Lachman, L., Lieberman, H. A., dan Kanig, J. L. 1986, *Teori dan Praktek Farmasi Industri*, Edisi ketiga, diterjemahkan oleh: Suyatmi, S., Penerbit Universitas Indonesia, Jakarta. Hal. 760-779, 1514 – 1587.

Larsen, A.T., Åkesson, P., Juréus, A., Saaby, L., Abu-Rmaileh, R., Abrahamsson, B., dkk., 2013. Bioavailability of Cinnarizine in Dogs: Effect of SNEDDS Loading Level and Correlation with Cinnarizine Solubilization During In Vitro Lipolysis. *Pharmaceutical Research*, **30**: 3101–3113.

Leelapornpisid, P., Kiattisin, K., Jantrawut, P., dan Phrutivorapongkul, A., 2014. Nanoemulsion Loaded with Marigold Flower Extract (*Tagetes Erecta Linn*) in Gel Preparation as Anti-Wrinkles Cosmeceutical. *International Journal of Pharmacy and Pharmaceutical Sciences*, **6**: 231–236.

Lin, Y.-M., Wu, J.-Y., Chen, Y.-C., Su, Y.-D., Ke, W.-T., Ho, H.-O., dan Sheu, M.-T., 2011. In situ formation of nanocrystals from a self-microemulsifying drug delivery system to enhance oral bioavailability of fenofibrate. *International Journal of Nanomedicine*, **6**: 2445–2457.

Lu, F.C., 1995, *Toksikologi Dasar Asas, Organ, Sasaran, dan Penilaian Resiko*, Edisi II, diterjemahkan oleh Edi Nugroho, UI-Press, Jakarta. Hal. 237-251.

Ma, W., Wlaschek, M., Brenneisen, P., Schneider, L.A., Hommel, C., Hellweg, C., Sauer, H., Wartenberg, M., Herrmann, G., Meewes, C., Boukamp, P., Kochanek, K.S., 2002. Human dermal fibroblasts escape from the long-term phenocopy of cenescence induced by psoralen photoactivation. *Experimental Cell Research*, **274**: 299–309.

Ma, Q., Davidson, P.M., dan Zhong, Q., 2016. Antimicrobial properties of microemulsions formulated with essential oils, soybean oil, and Tween 80. *International Journal of Food Microbiology*, **226**: 20–25.

Mansur, J.S, Breder M.N., Mansur M.C., dan Azulay, R.D., 1986. Determination of sun protection factor by spectrophotometry. *Anais Brasileiros de Dermatologia*, **61**: 121-124.

McClements, D.J., 2012. Nanoemulsions versus Microemulsions: Terminology, Differences, and Similarities. *Soft Matter*, **8**: 1719-1729.

Miller, J.N., and J.C. Miller., 2005. *Statistical and Chemometrics for Analytical Chemistry*. 5th Edition. Pearson Education, Ltd. Hal. 116.



Ministry of Health Republic of Indonesia., 2012. *Indonesian Herbal Pharmacopea*.
Hal. 210-213.

Misra, H., Dwivedi, B.K., Mehta, D., Mehta, B.K., dan Jain, D.C., 2009. Development and Validation of High Performance Thin-Layer Chromatographic Method for Determination of [alpha]-Mangostin in Fruit Pericarp of Mangosteen Plant (*Garcinia mangostana L.*) using Ultraviolet-Visible Detection. *Records of Natural Products*, **3**: 178.

Molyneux, P., 2004. The use of the stable free radical diphenylpicrylhydrazyl (DPPH) for estimating antioxidant activity. *Songklanakarin Journal of Science and Technology*, **26**: 211–219.

Moongkarndi, P., Kosem, N., Kaslungka, S., Luanratana, O., Pongpan, N., dan Neungton, N., 2004. Antiproliferation, antioxidation and induction of apoptosis by *Garcinia mangostana* (mangosteen) on SKBR3 human breast cancer cell line. *Journal of Ethnopharmacology*, **90**: 161–166.

Nakagawa, Y., Iinuma, M., Naoe, T., Nozawa, Y. dan Akao, Y., 2007. Characterized mechanism of alpha-mangostin induced cell death : caspase independent apoptosis with release of endonuclease-G from mitochondria and increased miR-143 expression in human colorectal cancer DLD-1 cells. *Bioorganic and Medical Chemistry*, **15**: 5620-5628.

Nazzal, S., dan Khan, M.A., 2002. Response surface methodology for the optimization of ubiquinone self-nanoemulsified drug delivery system. *American Association of Pharmaceutical Scientists*, **3**: 23–31.

Nepal, P.R., Han, H.-K., dan Choi, H.-K., 2010. Preparation and in vitro–in vivo evaluation of Witepsol® H35 based self-nanoemulsifying drug delivery systems (SNEDDS) of coenzyme Q10. *European Journal of Pharmaceutical Sciences*, **39**: 224–232.

Nevin, K.G., dan Rajamohan, T., 2006. Virgin Coconut Oil supplemented diet increases the antioxidant status in rats. *Food Chemistry*, **99**: 260-266.

Nurliyana, R., Syed Z.I., Mustapha S.K., Aisyah, M.R., dan Kamarul R.K., 2010. Antioxidant study of pulp and peel dragon fruits: a comparative study. *International Food Research Journal*, **17**: 365-375.

Pandey, A., dan Tripathi, S., 2014. Concept of standarization, extraction and pree phytochemical screening strategies for herbal drug. *Journal of Pharmacognosy and Phytochemistry*, **2**: 115-119.

Park, S.N., 1997. Skin aging and antioxidants. *Journal of the Society of Cosmetics Scientists of Korea*, **23**: 75–132.



- Parmar, N., Singla, N., Amin, S., dan Kohli, K., 2011. Study of cosurfactant effect on nanoemulsifying area and development of lercanidipine loaded (SNEDDS) self nanoemulsifying drug delivery system. *Colloids and Surfaces B: Biointerfaces*, **86**: 327–338.
- Parveen, N., dan Khan, N.U., 1988. Two xanthones from *Garcinia mangostana*. *Phytochemistry*, **27**: 3694-3696.
- Patel, M.J., Patel, N., dan Patel, M., 2010. A Self-Microemulsifying Drug Delivery System (SNEDDS). *International Journal of Pharmacy and Pharmaceutical Sciences*, **4**: 29–33.
- Patel, J., Kevin, G., Patel, A., Raval, M., dan Sheth, N., 2011. Design and development of a self-nanoemulsifying drug delivery system for telmisartan for oral drug delivery. *International Journal of Pharmacy and Pharmaceutical Sciences*, **1**: 112–118.
- Patel, D., Patel, K., dan Dhanabal, S.P., 2012. Phytochemical standardization of Aloe vera extract by HPTLC techniques. *Journal of Acute Disease*, 47-50.
- Pedraza-Chaverri, J., Cárdenas-Rodríguez, N., Orozco-Ibarra, M., dan Pérez-Rojas, J.M., 2008. Medicinal properties of mangosteen (*Garcinia mangostana*). *Food and Chemical Toxicology*, **46**: 3227–3239.
- Pine, H.S., 1988. *Radikal Bebas*. Bandung: ITB. Terjemahan dari: Organic Chemistry 2. Hal. 23-26.
- Pothitirat, W., dan Gritsanapan, W., 2008. Quantitative analysis of total mangostins in *Garcinia mangostana* fruit rind. *Journal of Health Research*, **22**:161-166.
- Pothitirat, W., Chomnawang, M.T., Supabphol, R., dan Gritsanapan, W., 2009. Comparison of bioactive compounds content, free radical scavenging and anti-acne inducing bacteria activities of extracts from the mangosteen fruit rind at two stages of maturity. *Fitoterapia*, **80**: 442–447.
- Potts, R.O., dan Guy, R.H., 1997. *Mechanism of Transdermal Drug Delivery*. Marcel Dekker. New York. Hal. 17.
- Pouton, C.W., 2000. Lipid formulations for oral administration of drugs: non-emulsifying, self-emulsifying and self-microemulsifying drug delivery systems. *European Journal of Pharmaceutical Science*, **11**: 93–98.
- Pouton, C.W. dan Porter, C.J.H., 2008. Formulation of lipid-based delivery systems for oral administration: Materials, methods and strategies. *Advanced Drug Delivery Reviews*, **60**: 625–637.



- Prasanthi, D.P., dan Lakshmi., 2012. Vesicle-Mechanism of Transdermal Permeation: A Review. *Asian Journal of Pharmaceutical and Clinical Research*, **5**:18-25.
- Priya, V., Jainu, M., Mohan, S.K., Saraswati, P., dan Gopan, C.S., 2010. Antimicrobial activity of pericarp extract of *garcinia mangostana* linn. *International Journal of Pharmaceutical Sciences and Research*, **1**: 278-281.
- Pujimulyani, D., 2003. Pengaruh bleaching terhadap sifat antioksidan sirup kunir putih (*Curcuma mangga* Val.). *Agritech*, **23**: 3.
- Pyka, A., 2009. Evaluation of the lipophilicity of fat-soluble vitamins. *Journal of Planar Chromatography-Modern TLC*, **22**: 211-215.
- Rabe, J.H., Mamelak, A.J., Mc Elgunn, P.J.S., dan Morison, W.L., 2006. Photoaging Mechanism and Repair. *Journal of the American Academy of Dermatology*, **55**: 1-19.
- Rahimpour, Y, H., dan Hamishehkar., 2012. Lactose engineering for better performance in dry powder inhalers. *Advance Pharmaceutical Bulletin*, **2**: 183–187.
- Rahmi, D., Yunilawati, R., dan Ratnawati, E., 2012. Pengaruh Nano Partikel Terhadap Aktivitas Anti Ageing Pada Krim. *Indonesian Journal of Materials Science*, **14**: 253-238.
- Rahmi, S., Suwarso, E dan Haro, G., 2016. The Giving Effects of Virgin Coconut Oil on Profile Pharmacokinetics Diclofenac Sodium. *International Journal of PharmTech Research*, **9**: 171-176.
- Rahimah, Sayekti, E., dan Jayuska, A., 2013. Karakterisasi Senyawa Flavonoid Hasil Isolat Dari Fraksi Etil Asetat Daun Matoa (*Pomentia pinnata* J.R.Forst &G.Forst). *Jurnal Kimia Khatulistiwa*, **2**: 84-89.
- Rigg, P.C., dan Barry, B.W., 1990. Shed snake skin and hairless mouse skin as model membranes for human skin during permeation studies. *Journal of Investigative Dermatology*, **94**:235–240.
- Rohdiana, D., 2001. Aktivitas Daya Tangkap Radikal Polifenol Dalam Daun Teh. *Majalah Jurnal Indonesia*, **12**: 53-58.
- Roldan-Cruz, C., Vernon-Carter, E.J., dan Alvarez-Ramirez, J., 2016. Assessing the stability of Tween 80-based O/W emulsions with cyclic voltammetry and electrical impedance spectroscopy. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, **511**: 145–152.



Rowe, R.C. (Ed.), 2009. *Handbook of Pharmaceutical Excipients*, 6. ed. ed. APhA, (PhP) Pharmaceutical Press, London. Hal. 546, 592.

Sahu, R., Matlam, M., Deshmukh, V., Dwivedi, J., Jha, A., dan Roy, A., 2013. In vitro techniques to assess the proficiency of skin care cosmetic formulations. *Pharmacognosy Reviews*, **7**: 97.

Saifudin, A., Rahayu, V., dan Teruna, H.Y., 2011. *Standarisasi bahan obat alam*. Yogyakarta. Graha Ilmu. Hal.10, 18.

Sakloetsakun, D., Dünnhaupt, S., Barthelmes, J., Perera, G., dan Bernkop-Schnürch, A., 2013. Combining two technologies: Multifunctional polymers and self-nanoemulsifying drug delivery system (SNEDDS) for oral insulin administration. *International Journal of Biological Macromolecules*, **61**: 363–372.

Sampath, P. dan Vijayaraghavan, K., 2007. Cardioprotective effect of alpha mangostin,a xanthone derivative from mangosteen on tissue defense system against isoproterenol-induced myocardial infarction in rats. *Journal Biochemical Molecular Toxicology*, **21**: 336–339.

Sanjeeewani, N.A. dan Sakeena, M.H.F., 2013. Formulation and Characterization of Virgin Coconut Oil (VCO) Based Emulsion. *International Journal of Scientific and Research Publications*, 528.

Sanka, K., Suda, D., dan Bakshi, V., 2016. Optimization of solid-self nanoemulsifying drug delivery system for solubility and release profile of clonazepam using simplex lattice. *Journal of Drug Delivery*, **33**: 114-124.

Sasivimolphan, P., Lipipun, V., Ritthidej, G., Chitphet, K., Yoshida, Y., Daikoku, T., dkk., 2012. Microemulsion-Based Oxyresveratrol for Topical Treatment of Herpes Simplex Virus (HSV) Infection: Physicochemical Properties and Efficacy in Cutaneous HSV-1 Infection in Mice. *American Association of Pharmaceutical Scientists*, **13**: 1266–1275.

Scalia, S., Trotta, V., Iannuccelli, V., dan Bianchi, A., 2015. Enhancement of in vivo human skin penetration of resveratrol by chitosan-coated lipid microparticles. *Colloids Surface B: Biointerfaces*, **135**: 42–49.

Senapati, P.C., Sahoo, S.K., dan Sahu, A.N., 2016. Mixed surfactant based (SNEDDS) self-nanoemulsifying drug delivery system presenting efavirenz for enhancement of oral bioavailability. *Biomedicine and Pharmacotherapy*, **80**: 42–51.



Shafiq-un-Nabi, S., Shakeel, F., Talegaonkar, S., Ali, J., Baboota, S., Ahuja, A., dkk., 2007. Formulation development and optimization using nanoemulsion technique: a technical note. *American Association of Pharmaceutical Scientists*, **8**: 12–17.

Shakeel, F., Alanazi, F., Alsarra, I., dan Haq, N., 2013. Solubility prediction of Indomethacin in PEG 400 water mixtures at various temperatures. *Journal of Molecular Liquids*, **188**: 28–32.

Shakeel, F., Haq, N., Alanazi, F.K., dan Alsarra, I.A., 2014. Polymeric solid self-nanoemulsifying drug delivery system of glibenclamide using coffee husk as a low cost biosorbent. *Powder Technology*, **256**: 352–360.

Shakeel, F., Haq, N., Alanazi, F.K., dan Alsarra, I.A., 2015. Removal of glibenclamide from aqueous solution using water/PEG-400/ethanol/eucalyptus oil green nanoemulsions. *Journal of Molecular Liquids*, **203**: 120–124.

Shah, P., Bhalodia, D., dan Shelat, P., 2010. Nanoemulsion: A pharmaceutical review. *Systematic Reviews in Pharmacy*, **1**: 24.

Sharma, B., dan Sharma, A., 2012. Future Prospect Of Nanotechnology In Development Of Anti-Ageing Formulations. International Journal of Pharmacy and Pharmaceutical Sciences. *International Journal of Pharmaceutical Scientists*, **4**: 57-66.

Shia, L., Shanb, J., Jub, Y., Aikensc, P., dan Prud'homm, R.K., 2012. Nanoparticles as delivery vehicles for sunscreen agents. *Colloids and Surfaces*, **396**: 122-129.

Shu, G., Khalid, N., Zhao, Y., Neves, M.A., Kobayashi, I., dan Nakajima, M., 2016. Formulation and stability assesment of ergocalciferol loaded oil-in-water nanoemulsions: Insights of emulsifiers effect on stabilization mechanism. *Food Research International*, **90**: 320-327.

Singh, S.K., Verma, P.R., dan Razdan B., 2010. Glibenclamide-loaded self-nanoemulsifying drug delivery system: development and characterization. *Drug Development and Industrial Pharmacy*, **36**: 933–945.

Sinko, J.P., 2006. *Martin's Physical Pharmacy and Pharmaceutical Sciences*. 5th edition. Lippincott Williams and Wilkins. United State of America. Hal. 232-233, 378, 409.



- Siriwongwilaichat, P., Angnanon, W., dan Rattanapanone, N., 2012. The Effect of Processing Variables on Antioxidative Capacity of Mangosteen Peel (*Garcinia Mangostana L.*) Extract. *Journal of Agricultural Science and Technology B*, **2**: 529–536.
- Songkro, S., Wungsintawekul, J., dan Chartwaingaam, S., 2008. Investigation of enhancing activity and skin irritation of Zingiber officinale, Zingiber cassumunar and Curcuma zedoaria. *Journal of Drug Delivery Science and Technology*, **18**: 169-179.
- Šmejkalová, D., Muthný, T., Nešporová, K., Hermannová, M., Achbergerová, E., Huerta-Angeles, G., dkk., 2017. Hyaluronan polymeric micelles for topical drug delivery. *Carbohydrate Polymers*, **156**: 86–96.
- Suciati, T., Aliy and i, A., dan Satrialdi., 2014. Development of Transdermal Nanoemulsion Formulation for Simultaneous Delivery of Protein Vaccine and Artin-M Adjuvant. *International Journal of Pharmacy and Pharmaceutical Science*, **6**: 536-546.
- Sudjadi., 1988. *Metode Pemisahan*. Kanisius. Yogyakarta. Hal. 77, 167-174.
- Sulistyo, J., Rita, D.R., dan Masniari, P., 2009. In Enzymatic Extraction Virgin Coconut Oil (VCO) and Pre Clinical Testing Using DDY Mice. *Biological Research*, **3**: 101-106.
- Sunarni,T., 2005. Aktivitas Antioksidan Penangkap Radikal Bebas Beberapa kecambah Dari Biji Tanaman Familia Papilionaceae. *Jurnal Farmasi Indonesia*, **2**: 53-61.
- Supiyanti, W., Endang, D.W., dan Lia, K. 2010. Uji Aktivitas antioksidan dan Penentuan Kandungan Antosianin pada kulit buah manggis (*Garcinia Mangostana*). *Majalah Obat Tradisional*, **15**: 64-70.
- Suyanti, dan Setyadjit., 2007. Teknologi Penanganan Buah Manggis Untuk Mempertahankan Mutu Selama Penyimpanan. *Buletin Teknologi Pascapanen Pertanian*, **3**: 67.
- Swarbrick, J., dan Boylan, J.C., 1995. *Encyclopedia of Pharmaceutical Technology*. Marcel Dekker, New York. Hal. 43-75.
- Syah, A.N.A., 2005. *Virgin Coconut Oil*: minyak penakluk aneka penyakit. Agromedia.
- Taha, E., Al-Suwayeh, S.A., dan El-Badry, M., 2009. Bioavailability Study of Indomethacin Self-nanemulsifying Oral Formulation in Rats. *Australian Journal of Basic and Applied Science*, **3**: 2944-2948.



- Takahash, K., Tamagawa, S., Katagi, T., Rytting, J.H., Nishihata, T., dan Mizuno, N., 1993. Percutaneous penetration of basic compounds through shed snake skin as a model membrane. *Journal of Pharmacy and Pharmacology*, **45**: 882–886.
- Tassel, A.D., Kirilov, P., Salvi, J.P., Tran, V. H., Dore, V., dkk., 2016. Ex-vivo permeation of enrofloxacin through shed skin of *Phyton molurus bivittatus*, as evaluated with a Franz cell. *Journal of Drug Delivery*, **36**: 89-94.
- Thappa, D., dan Konda, D., 2013. Age reversing modalities: An overview. *Indian Journal of Dermatology, Venereology, and Leprology*, **79**: 3.
- Thring, T.S.A., Hili, P., dan Naughton, D.P., 2009. Anti-collagenase, anti-elastase and anti-oxidant activities of extracts from 21 plants. *BMC complementary and Alternative Medicine*. **9**:27.
- Tjahjani, S., Widowati, W., Khiong, K., Suhendra, A., dan Tjokropranoto, R., 2014. Antioxidant Properties of *Garcinia Mangostana L* (Mangosteen) Rind. *Procedia Chemistry*, **13**: 198–203.
- Tranggono, R.I, dan Fatma, L., 2007. *Buku Pegangan Ilmu Pengetahuan Kosmetik*. Gramedia Pustaka Utama. Jakarta. Hal. 8.
- Uito, J., Chu, M., Gallo, R. dan Eizen, A.Z., 2008. *Collagen, Elastic fibers and Extracellular Matrix of the Dermis*. In : Wolff, K., Gold Smith, L.A., Katt. Hal. 22.
- Ullrich, S.E., 2005. Mechanisms underlying UV-induced immune suppression. *Mutation Research*, **571**:185-205.
- Vilas, P.C., Gujarathi, N.A., dan Bhushan, R.R., 2014. Preparation and In Vitro Evaluation of Self-Nanoemulsifying Drug Delivery System (SNEDDS) Containing Clopidogrel. *International Journal of Pharmaceutical Science Review and Research*, **25**: 10-15.
- Villar, A.M., Naveros, B.C., Campmany, A.C., Trenchs, M.A., Rocabert, C.B., dan Bellowa, L.H., 2012. Design and Optimization of Self-Nanoemulsifying Drug Delivery Systems (SNEDDS) For Enhanced Dissolution of Gemfibrozil. *International Journal of Pharmaceutics*, **431**: 161-175.
- Voigt, R., 1995. *Buku Pelajaran Teknologi Farmasi*. Yogyakarta: Gadjah Mada University Press. Hal. 577-578.



Weecharangsan, W., Opanasopit, P., Sukma, M., Ngawhirunpat, T., Sotanaphun, U. dan Siripong, P., 2006. Antioxidative and neuro protective activities of extracts from the fruit hull of mangosteen (*Garcinia mangostana* Linn.). *Journal Medical Principles and Practice*, **15**: 281-287.

Wibowo JT, Djuwarno EN, Hayati F, Prabowo H., 2012. Standardization of kangkong (*Ipomea reptans* Poir) ethanolic extract. *Proceeding in the 1st International Pharmacy Conference on Research and Practice “Toward excellent in natural product: preserving traditions, embracing innovations”*. Hal.132-136.

Widyanati, P., Jufri, M., dan Elya, B., 2014. Formulation and Penetration Study of Liposome Gel Xanthone of Extract Mangosteen Pericarp (*Garcinia mangostana* L.). *International Journal of Pharmaceutical Sciences Review and Research*, **27**.

Williams, A.C., dan Barry, B.W., 2004. Penetration enhancers. *Advanced Drug Delivery Reviews*, **56**: 603–618.

Winarsi, H., 2007. *Antioksidan Alami dan Radikal Bebas*. Penerbit Kanisius. Yogyakarta. Hal. 86-105.

Witradharma, T.W., Lipoeto, N.I., dan Asri, A., 2012. Effect of Fatty Acid Consumption of Various Types of Indicators Genesis atherogenesis In Rats Male Wistar Strain. *Biomedical Journal*, **13**: 2-6.

Wittenauer, J., Falk, S., Schweiggert-Weisz, U., dan Carle, R., 2012. Characterisation and Quantification of xanthones From The Aril and Pericarp of Mangosteens (*Garcinia mangostana* L) and a Mangosteen Containing Functional Beverage by HPLC-DAD-MS. *Food Chemistry*, **134**: 445-45.

Wolf, R., Wolf, D., Morganti, P., dan Ruocco, V., 2001. Sunscreens. *Clinics in Dermatology*, **19**: 452-459.

Xi, J., Chang, Q., Chan, C.K., Meng, Z.Y., Wang, G.N., Sun, J.B., Wang, Y.T., Tong, H.H., dan Zheng, Y., 2009. Formulation development and bioavailability evaluation of a self-nanoemulsified drug delivery system of oleanolic acid. *American Association of Pharmaceutical Scientists*, **10**: 172–182.

Yaar, M., dan Gilchrest, B.A., 2008. *Aging of Skin*. In : Wolff, K., Goldsmith, L.A., Katz, S.I., Gilchrest, B.A., Paller, A.S., Leffell, D.J., editors. *Fitzpatrick's Dermatology in General Medicine*. 7th ed. New York: McGraw-Hill. Hal. 963-74.



Yoo, J.H., Shanmugam, S., Thapa, P., Lee, E.-S., Balakrishnan, P., Baskaran, R., dkk., 2010. Novel self-nanoemulsifying drug delivery system for enhanced solubility and dissolution of lutein. *Archives of Pharmacal Research*, **33**: 417–426.

Zarena, A.S., dan Sankar, U., 2009. Screening of xanthone from mangosteen (*Garcinia mangostana L.*) peels and their effect on cytochrome c reductase and phosphomolybdenum activity. *Journal of Natural Products*, **2**: 23-30.

Zhao, Y., Wang, C., Chow, A.H.L., Ren, K., Gong, T., Zhang, Z., dkk., 2010. Self-nanoemulsifying drug delivery system (SNEDDS) for oral delivery of Zedoary essential oil: Formulation and bioavailability studies. *International Journal of Pharmaceutics*, **383**: 170–177.