

DAFTAR PUSTAKA

- Abo Enin, H. A. (2015) 'Self-nanoemulsifying drug-delivery system for improved oral bioavailability of rosuvastatin using natural oil antihyperlipdemic', *Drug Development and Industrial Pharmacy*, 41(7), pp. 1047–1056. doi: 10.3109/03639045.2014.983113.
- Agrahari, V., Bajpai, M. and Nanda, S. (2013) 'Essential concepts of mobile phase selection for Reversed phase HPLC', *Research Journal of Pharmacy and Technology*, 6(5), pp. 459–464.
- de Aguiar, P. F., Bourguignon, B., Khots, M.S., Massart, D.L., Phan-Than-Luu, R.. (1995) 'D-optimal designs', *Chemometrics and Intelligent Laboratory Systems*, 30(2), pp. 199–210. doi: 10.1016/0169-7439(94)00076-X.
- Alam, M. and Havey, J. (2010) 'Photoaging', in Draelos, Z. D. (ed.) *Cosmetic Dermatology Products and Procedures*. West Sussex: Blackwell Publishing Ltd, pp. 13–20.
- Ali, S. M. and Yosipovitch, G. (2013) 'Skin pH: From basic science to basic skin care', *Acta Dermato-Venereologica*, 93(3), pp. 261–267. doi: 10.2340/00015555-1531.
- Ali, S., Shabbir, M. and Shahid, N. (2015) 'The structure of skin and transdermal drug delivery system - A review', *Research Journal of Pharmacy and Technology*, 8(2), pp. 103–109. doi: 10.5958/0974-360X.2015.00019.0.
- Alvarado, H. L., Abrego, G., Soutoc, E. B., Garduno-Ramirez, M. L., Clares, B., Garcia, M. L., Calpena, A.C. *et al.* (2015) 'Nanoemulsions for dermal controlled release of oleanolic and ursolic acids: In vitro, ex vivo and in vivo characterization', *Colloids and Surfaces B: Biointerfaces*, 130, pp. 40–47.
- Alves, T.F.R.; Morsink, M.; Batain, F.; Chaud, M.V.; Almeida, T.; Fernandes, D.A., *et.al.* (2020) 'Applications of natural, semi-synthetic, and synthetic polymers in cosmetic formulations', *Cosmetics*, 7(4), pp. 1–16. doi: 10.3390/COSMETICS7040075.
- Amasya, G. (2021) 'A novel formulation strategy for skin occlusion: Semi-solid lipid nanoparticles', *Journal of Research in Pharmacy*, 25(4), pp. 388–397. doi: 10.29228/jrp.29.
- AOAC International (2016) 'Appendix F: Guidelines for Standard Method Performance Requirements', *AOAC International and Official Method of Analysis*, pp. 1–18.

- Astuti, I. Y. (2018) *Optimasi Formula dan Studi Aktivitas Antiinflamasi Self-Nanoemulsifying Drug Delivery System (SNEEDS) Pentagamavunon-0 (PGV-0)*. Universitas Gadjah Mada.
- Azimzadeha, M.J., Shidfarc, F., Jazayeri, S., Hosseini, A.F., Ranjbaran, F. (2020) ‘Effect of vitamin D supplementation on klotho protein, antioxidant status and nitric oxide in the elderly: A randomized, double-blinded, placebocontrolled clinical trial’, *European Journal of Integrative Medicine*, 20, p. 101089.
- Bahar-Shany, K., Ravid, A. and Koren, R. (2010) ‘Upregulation of MMP-9 production by TNF α in keratinocytes and its attenuation by vitamin D’, *Journal of Cellular Physiology*, 222(3), pp. 729–737. doi: 10.1002/jcp.22004.
- Balakumar, K., Raghavan, C. V., Selvan, N. T., Habibur Rahman, S.M. (2013) ‘Self emulsifying drug delivery system: Optimization and its prototype for various compositions of oils, surfactants and co-surfactants’, *Journal of Pharmacy Research*. Elsevier Ltd, 6(5), pp. 510–514. doi: 10.1016/j.jopr.2013.04.031.
- Bikle, D. (2012) ‘Vitamin D and the skin: Physiology and pathophysiology’, *Rev Endocr Metab Disord*, 13(1), pp. 3–19.
- Bocheva, G., Slominski, R. M. and Slominski, A. T. (2021) ‘The impact of vitamin d on skin aging’, *International Journal of Molecular Sciences*, 22(16), pp. 1–18. doi: 10.3390/ijms22169097.
- Byrdwell, W. C. (2011) “‘dilute-and-shoot” triple parallel mass spectrometry method for analysis of vitamin D and triacylglycerols in dietary supplements’, *Analytical and Bioanalytical Chemistry*, 401(10), pp. 3317–3334. doi: 10.1007/s00216-011-5406-4.
- Chaerunisaa, A. Y., Abdassah, M., Levita, J., Febrina, E., Hafni, U. (2021) ‘Piroxicam Percutaneous Permeation from Gels Through Membrane Models of Shed Snakeskin and Cellulose Permeasi Perkutan Piroksikam dari Sediaan Gel Melalui Model Membran Kulit Ular dan Selulosa’, *Indonesian Journal of Pharmaceutical Science and Technology*, 8(2), pp. 66–75.
- ChemicalBook (2022) *Caprylic/capric triglyceride*. Available at: https://www.chemicalbook.com/ChemicalProductProperty_EN_CB12130353.htm (Accessed: 5 April 2023).
- Chicco, D., Warrens, M. J. and Jurman, G. (2021) ‘The coefficient of determination R-squared is more informative than SMAPE, MAE, MAPE, MSE and RMSE in regression analysis evaluation’, *PeerJ Computer Science*, 7, pp. 1–24. doi: 10.7717/PEERJ-CS.623.

- Clares, B., Calpena, A.C., Parra, A., Abrego, G., Alvarado, H., Fanguero, J. F., Souto, E. B. (2014) 'Nanoemulsions (NEs), liposomes (LPs) and solid lipid nanoparticles (SLNs) for retinyl palmitate: effect on skin permeation', *International journal of pharmaceutics*, 473(1–2), pp. 591–598. doi: 10.1016/j.ijpharm.2014.08.001.
- Cohen, J. L. and Freeman, S. R. (2010) 'Botulinum Toxins', in Draeos, Z. D. (ed.) *Cosmetic Dermatology Products and Procedures*. West Sussex: Blackwell Publishing Ltd, pp. 343–351.
- Cregge, R. J., Durham, S. L., Farr, R. A., Gallion, S. L., Hare, C. M., Hoffman, R. V., *et.al.* (1998) 'Inhibition of human neutrophil elastase. 4. Design, synthesis, X-ray crystallographic analysis, and structure-activity relationships for a series of P2-modified, orally active peptidyl pentafluoroethyl ketones', *Journal of Medicinal Chemistry*, 41(14), pp. 2461–2480. doi: 10.1021/jm970812e.
- Danaei, M., Dehghankhold, M., Ataei, S., Davarani, F. H., Javanmard, R., Dokhani, A. *et.al.* (2018) 'Impact of particle size and polydispersity index on the clinical applications of lipidic nanocarrier systems', *Pharmaceutics*, 10(2), pp. 1–17. doi: 10.3390/pharmaceutics10020057.
- Date, A. A., Desai, N., Dixit, R., and Nagarsenker, M. (2010) 'Self-nanoemulsifying drug delivery systems: Formulation insights, applications and advances', *Nanomedicine*, 5(10), pp. 1595–1616. doi: 10.2217/nnm.10.126.
- Dimartino, G. (2009) 'Simultaneous determination of cholecalciferol (vitamin D3) and ergocalciferol (vitamin D2) in foods by selected reaction monitoring', *Journal of AOAC International*, 92(2), pp. 511–517. doi: 10.1093/jaoac/92.2.511.
- Dixon, K. M., Tongkao-On, W., Sequeira, V. B., Carter, S. E., Song, E. J., Rybchyn, M. S. *et al.* (2013) 'Vitamin D and death by sunshine', *International Journal of Molecular Sciences*, 14(1), pp. 1964–1977. doi: 10.3390/ijms14011964.
- Eldin, M. S. M. (2014) 'Cellophane Membranes', in Drioli, E. and Giorno, L. (eds) *Encyclopedia of Membranes*. Berlin Heidelberg: Springer. doi: 10.1007/978-3-642-40872-4_1857-1.
- Elmataeeshy, M. E., Sokar, M. S., Bahey-el-din, M., and Shaker, D. S. (2018) 'Enhanced transdermal permeability of Terbinafine through novel nanoemulgel formulation; Development, in vitro and in vivo characterization', *Future Journal of Pharmaceutical Sciences*, 4, pp. 18–28. doi: 10.1016/j.fjps.2017.07.003.
- European Medicines Agency (2006) 'ICH Topic Q 2 (R1) Validation of Analytical Procedures: Text and Methodology'. London: European Medicines Agency.

- Fetih, G. (2010) 'Meloxicam formulations for transdermal delivery: Hydrogels versus organogels', *Journal of Drug Delivery Science and Technology*. Elsevier Masson SAS, 20(6), pp. 451–456. doi: 10.1016/S1773-2247(10)50078-9.
- Fuller, B. B. (2010) 'Antioxidants and anti-inflammatories', in Draeos, Z. D. (ed.) *Cosmetic Dermatology Products and Procedures*. West Sussex: Blackwell Publishing Ltd, pp. 281–289.
- Gadek, J. E., Fells, G. A., Wright, D. G., and Crystal, R. G. (1980) 'Human neutrophil elastase functions as a type III collagen "Collagenase"', *Topics in Catalysis*, 95(4), pp. 1815–1822. doi: 10.1016/S0006-291X(80)80110-0.
- Ganceviciene, R., Liakou, A. I., Theodoridis, A., Makrantonaki, E., and Zouboulis, C. C. (2012) 'Skin anti-aging strategies', *Dermato-Endocrinology*, 4(3), pp. 308–319.
- Gautam, A., Singh, D. and Vijayaraghavan, R. (2011) 'Dermal Exposure of Nanoparticles: An Understanding', *Journal of Cell and Tissue Research*, 11(1), pp. 2703–2708.
- Gilbert, L., Picard, C., Savary, G., Grisel, M. (2013) 'Rheological and textural characterization of cosmetic emulsions containing natural and synthetic polymers: Relationships between both data', *Colloids and Surfaces A: Physicochemical and Engineering Aspects*. Elsevier B.V., 421, pp. 150–163. doi: 10.1016/j.colsurfa.2013.01.003.
- Gupta, S., Verma, P., Mishra, A. P., Omar, N., and Mathur, R. (2021) 'A Review on Novel Analytical Method Development and Validation by RP-HPLC Method', *Indian Journal of Forensic Medicine & Toxicology*, 15(4). doi: 10.37506/ijfmt.v15i4.17798.
- Guttoff, M., Saberi, A. H. and McClements, D. J. (2015) 'Formation of vitamin D nanoemulsion-based delivery systems by spontaneous emulsification: Factors affecting particle size and stability', *Food Chemistry*. Elsevier Ltd, 171, pp. 117–122. doi: 10.1016/j.foodchem.2014.08.087.
- Hajrin, W., Subaidah, W. A., Juliantoni, Y., and Wirasisya, D. G. (2021) 'Application of Simplex Lattice Design Method on The Optimisation of Deodorant Roll-on Formula of Ashitaba (*Angelica keiskei*)', *Jurnal Biologi Tropis*, 21(2), pp. 501–509. doi: 10.29303/jbt.v21i2.2717.
- Heshmati, N., Cheng, X., Eisenbrand, G., and Fricker, G. (2013) 'Enhancement of Oral Bioavailability of E804 by Self-Nanoemulsifying Drug Delivery System (SNEDDS) in Rats', *Journal of Pharmaceutical Sciences*, 102(10), pp. 3792–3799. doi: 10.1002/jps.23696.

- Heutinck, K. M., ten Berge, I. J.M., Hack, C. E., Hamann, J., and Rowshani, A.T. (2010) 'Serine proteases of the human immune system in health and disease', *Molecular Immunology*. Elsevier Ltd, 47(11–12), pp. 1943–1955. doi: 10.1016/j.molimm.2010.04.020.
- Holmberg, K. (2018) 'Interactions between surfactants and hydrolytic enzymes', *Colloids and Surfaces B: Biointerfaces*. Elsevier B.V., 168, pp. 169–177. doi: 10.1016/j.colsurfb.2017.12.002.
- Huang, B. F., Pan, X. D., Zhang, J. S., Xu, J. J., and Cai, Z. X. (2020) 'Determination of Vitamins D2 and D3 in Edible Fungus by Reversed-Phase Two-Dimensional Liquid Chromatography', *Journal of Food Quality*, 2020. doi: 10.1155/2020/8869279.
- Inami, Y., Andoh, T., Sasaki, A., and Kuraishi, Y. (2012) 'Topical Surfactant-Induced Pruritus: Involvement of Histamine Released from Epidermal Keratinocytes', *Journal of Pharmacology and Experimental Therapeutics*, 344(2), pp. 459–466. doi: 10.1124/jpet.112.200063.
- Inoue, Y., Omodani, T., Shiratake, R., Okazaki, H., Kuromiya, A., and Kubo, T. *et.al.* (2009) 'Development of a highly water-soluble peptide-based human neutrophil elastase inhibitor; AE-3763 for treatment of acute organ injury', *Bioorganic and Medicinal Chemistry*. Elsevier Ltd, 17(21), pp. 7477–7486. doi: 10.1016/j.bmc.2009.09.020.
- Jain, S. K. and Parsanathan, R. (2020) 'Can Vitamin D and L-Cysteine Co-Supplementation Reduce 25(OH)-Vitamin D Deficiency and the Mortality Associated with COVID-19 in African Americans?', *Journal of the American College of Nutrition*. Taylor & Francis, 39(8), pp. 694–699. doi: 10.1080/07315724.2020.1789518.
- Jaiswal, M., Dudhe, R. and Sharma, P. K. (2015) 'Nanoemulsion: an advanced mode of drug delivery system', *3 Biotech*, 5(2), pp. 123–127. doi: 10.1007/s13205-014-0214-0.
- Jakimiuk, K., Gesek, J., Atanasov, A. G., and Tomczyk, M. (2021) 'Flavonoids as inhibitors of human neutrophil elastase', *Journal of Enzyme Inhibition and Medicinal Chemistry*. Taylor & Francis, 36(1), pp. 1016–1028. doi: 10.1080/14756366.2021.1927006.
- Kassem, A. A., Abd El-Alim, S. H., Salman, A. M., Mohammed, M. A., Hassan, N. S., and El-Gengaihi, S. E. (2020) 'Improved hepatoprotective activity of Beta vulgaris L. leaf extract loaded self-nanoemulsifying drug delivery system (SNEDDS): in vitro and in vivo evaluation', *Drug Development and Industrial Pharmacy*. Taylor & Francis, 46(10), pp. 1589–1603. doi:

10.1080/03639045.2020.1811303.

- Ke, C.Y., Yang, F.L., Wu, W.T., Chung, C.H., Lee, R.P., Yang, W.T., *et al.* (2016) 'Vitamin D3 reduces tissue damage and oxidative stress caused by exhaustive exercise', *International Journal of Medical Sciences*, 13(2), pp. 147–153. doi: 10.7150/ijms.13746.
- Kim, Y., Park, E.J., Kim, T.W., and Na, D.H. (2021) 'Recent progress in drug release testing methods of biopolymeric particulate system', *Pharmaceutics*, 13(8), pp. 1–23. doi: 10.3390/pharmaceutics13081313.
- Knoke, S. and Bunjes, H. (2021) 'Transfer of lipophilic drugs from nanoemulsions into lipid-containing alginate microspheres', *Pharmaceutics*, 13(2), pp. 1–16. doi: 10.3390/pharmaceutics13020173.
- Lémery, E., Briançon, S., Chevalier, Y., Bordes, C., Oddos, T., Gohier, A., *et al.* (2015) 'Skin toxicity of surfactants : Structure / toxicity relationships', *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 469, pp. 166–179.
- Levy, M. Y. and Benita, S. (1990) 'Drug release from submicronized o/w emulsion: a new in vitro kinetic evaluation model', *International Journal of Pharmaceutics*, 66(1–3), pp. 29–37. doi: 10.1016/0378-5173(90)90381-D.
- Li, Y., Xia, W., Liu, Y., Remmer, H. A., Voorhees, J., and Fisher, G. J. (2013) 'Solar Ultraviolet Irradiation Induces Decorin Degradation in Human Skin Likely via Neutrophil Elastase', *PLoS ONE*, 8(8), pp. 1–8. doi: 10.1371/journal.pone.0072563.
- Lipkie, T. E., Janasch, A., Cooper, B. R., Hohman, E. E., Weaver, C. M., and Ferruzzi, M. G. (2013) 'Quantification of vitamin D and 25-hydroxyvitamin D in soft tissues by liquid chromatography-tandem mass spectrometry', *Journal of Chromatography B: Analytical Technologies in the Biomedical and Life Sciences*, 932, pp. 6–11. doi: 10.1016/j.jchromb.2013.05.029.
- López-López, N., González-Curiel, I., Treviño-Santa Cruz, M. B., Rivas-Santiago, B., Trujillo-Paez, V., Enciso-Moreno, J. A., *et al.* (2014) 'Expression and vitamin D-mediated regulation of matrix metalloproteinases (MMPs) and tissue inhibitors of metalloproteinases (TIMPs) in healthy skin and in diabetic foot ulcers', *Archives of Dermatological Research*, 306(9), pp. 809–821. doi: 10.1007/s00403-014-1494-2.
- Mattila, P. H., Piironen, V. I., Uusi-Rauva, E. J., and Koivistoinen, P. E. (1994) 'Vitamin D Contents in Edible Mushrooms', *J. Agric. Food Chem.*, 42, p. 2449.
- Mattila, P. H., Piironen, V. I., Koivistoinen, P. E., and Uusi-Rauva, E. J. (1995) 'Contents of Cholecalciferol, Ergocalciferol, and Their 25-Hydroxylated

- Metabolites in Milk Products and Raw Meat and Liver As Determined by HPLC', *Journal of Agricultural and Food Chemistry*, 43(9), pp. 2394–2399. doi: 10.1021/jf00057a015.
- Mattila, P. H., Piironen, V. I., Uusi-Rauva, E. J., and Koivistoinen, P. E. (1996) 'New analytical aspects of vitamin D in foods', *Food Chemistry*, 57(1), pp. 95–99. doi: 10.1016/0308-8146(96)00144-6.
- Miller, J. N. and Miller, J. C. (2010) *Statistics and Chemometrics for Analytical Chemistry*. Sixth. London: Pearson Education Limited.
- Mishra, D. K., Shandilya, R. and Mishra, P. K. (2018) 'Lipid based nanocarriers: a translational perspective', *Nanomedicine: Nanotechnology, Biology, and Medicine*, 14(7), pp. 2023–2050. doi: 10.1016/j.nano.2018.05.021.
- Mitura, S., Sionkowska, A. and Jaiswal, A. (2020) 'Biopolymers for hydrogels in cosmetics: review', *Journal of Materials Science: Materials in Medicine*, 31(6). doi: 10.1007/s10856-020-06390-w.
- Mohsin, K., Shahba, A. A. and Alanazi, F. K. (2012) 'Lipid based self emulsifying formulations for poorly water soluble drugs-An excellent opportunity', *Indian Journal of Pharmaceutical Education and Research*, 46(2), pp. 88–96.
- More, A. V., Dhokchawle, B.V., Tauro, S. J., Kulkarni, S. V. (2022) 'Lipid as an excipient for design and development of formulations', *Indian Drugs*, 59(07).
- Morgan, T., Reed, B. and Finnin, B. (1998) 'Enhanced Skin Permeation of Sex Hormones with Novel Topical Spray Vehicles', *Journal of Pharmaceutical Sciences*, 87(10), pp. 1213–1218.
- Mostafa, W. Z. and Hegazy, R. A. (2013) 'Vitamin D and the skin: Focus on a complex relationship: A review', *Journal of Advanced Research*. Cairo University, 6(6), pp. 793–804. doi: 10.1016/j.jare.2014.01.011.
- Mostafa, W. Z. and Hegazy, R. A. (2015) 'Vitamin D and the skin: Focus on a complex relationship: A review', *J Adv Res*, 6(6), pp. 793–804.
- Mursyid, A. M. (2017) 'Evaluasi Stabilitas Fisik Dan Profil Difusi Sediaan Gel (Minyak Zaitun)', *Jurnal Fitofarmaka Indonesia*, 4(1), pp. 205–211. doi: 10.33096/jffi.v4i1.229.
- Myers, R. H., Montgomery, D. C. and Anderson-Cook, C. M. (2009) *Response Surface Methodology*. third edit. New Jersey: John Wiley & Sons, Inc.
- Nagarajan, R. (2001) 'Polymer-Surfactant Interactions', in *New Horizons: Detergents for the New Millennium Conference Invited Papers*. Fort Myers,

- Florida: American Oil Chemists Society and Consumer Specialty Products Association.
- Nair, R. and Maseeh, A. (2012) 'Vitamin D: The "sunshine" vitamin', *Journal of Pharmacology and Pharmacotherapeutics*, 3(2), pp. 118–127.
- Nandita, S. P., Kuncahyo, I. and Harjanti, R. (2021) 'Formulation and Optimization of Furosemide Snedds With Variation Concentration of Tween 80 and PEG 400', *Journal of Fundamental and Applied Pharmaceutical Science*, 2(1), pp. 34–42. doi: 10.18196/jfaps.v2i1.12180.
- Nestor, M. S. (2010) 'Hyaluronic acid fillers', in Draelos, Z. D. (ed.) *Cosmetic Dermatology Products and Procedures*. West Sussex: Blackwell Publishing Ltd, pp. 352–355.
- Neupane, R., Boddu, S. H. S., Renukuntla, J., Babu, R. J. and Tiwari, A. K. (2020) 'Alternatives to Biological Skin in Permeation Studies: Current Trends and Possibilities', *Pharmaceutics*, 12(152). doi: 10.3390/pharmaceutics12020152.
- Ng S.F., Rouse J.J., Sanderson F.D., Meidan V., Eccleston G.M. (2010) 'Validation of a static Franz diffusion cell system for in vitro permeation studies', *AAPS PharmSciTech*, 11(3), pp. 1432–1441. doi: 10.1208/s12249-010-9522-9.
- Nguyen, N.-K. and Miller, A. J. (1992) 'A review of some exchange algorithms for constructing discrete D-optimal designs', *Computational Statistics & Data Analysis*, 14, pp. 489–498.
- Nugroho, A. K. (2015) 'Aplikasi Komputasi dan Modeling Berbasis Populasi Dalam Pengembangan Formulasi Sediaan Transdermal'. Pidato Pengukuhan Jabatan Guru Besar pada Fakultas Farmasi Universitas Gadjah Mada.
- Nurdianti, L., Setiawan, F., Aryani, R., Mudhakir, D., and Anggadiredja, K. (2018) 'Research Article Nanoemulsion-Based Gel Formulation of Astaxanthin for Enhanced Permeability: Potential as a Transdermal Drug Delivery System', 52(10), pp. 55–59.
- Pawestri, S. A., Nugroho, A. K., Lukitaningsih, E., and Purwantiningsih (2021) 'Compartmental Modeling Approach: Application on Transdermal Delivery for In Vitro Drug Permeation Mechanism Analysis', *Journal of Food and Pharmaceutical Sciences*, 9(3), pp. 481–486. doi: 10.22146/jfps.2198.
- Pawestri, S. A., Nugroho, A. K. and Lukitaningsih, E. (2021) 'In vitro Transdermal Transport of Domperidone by Compartmental Modeling Approach', *Indonesian Journal of Pharmacy*, 32(1), pp. 10–16.
- Philips, N., Portillo-Esnaola, M., Samuel, P., Gallego-Rentero, M., Keller, T., and

- Franco, J. (2022) 'Anti-aging and anti-carcinogenic effects of 1 α , 25-dihydroxyvitamin D3 on skin', *Plastic and Aesthetic Research*. doi: 10.20517/2347-9264.2021.83.
- Pillai, S., Cornell, M. and Oresajo, C. (2010) 'Epidermal Barrier', in Draeos, Z. D. (ed.) *Cosmetic Dermatology Products and Procedures*. West Sussex: Blackwell Publishing Ltd, pp. 3–11.
- Pisoschi A.M., Pop A., Iordache F., Stanca L., Geicu O.I., Bilteanu L. *et.al.* (2022) 'Antioxidant, anti-inflammatory and immunomodulatory roles of vitamins in COVID-19 therapy', *European Journal of Medicinal Chemistry*, 232(114175).
- Ramos-e-Silva, M., Celem, L. R., Ramos-e-Silva, S., and Fucci-da-Costa, A. P. (2013) 'Anti-aging cosmetics: Facts and controversies', *Clinics in Dermatology*. Elsevier Inc., 31(6), pp. 750–758. doi: 10.1016/j.clindermatol.2013.05.013.
- Ravisankar, P., Navya, Ch. N., Pravalika, D., and Sri, D. N. (2015) 'A review on step-by-step analytical method validation', *IOSR Journal Of Pharmacy*, 5(10), pp. 2250–3013.
- Rehman, F. U., Shah, K. U., Shah, S. U., Khan, I. U., Khan, G. M., and Khan, A. (2017) 'From nanoemulsions to self-nanoemulsions, with recent advances in self-nanoemulsifying drug delivery systems (SNEDDS)', *Expert Opinion on Drug Delivery*, 14(11), pp. 1325–1340. doi: 10.1080/17425247.2016.1218462.
- Rigg, P. and Barry, B. (1990) 'Shed Snake Skin and Hairless Mouse Skin as Model Membranes for Human Skin During Permeation Studies', *J Invest Dermatol*, 94, pp. 235–240.
- Russell, M. (2012) 'Assessing the relationship between vitamin D3 and stratum corneum hydration for the treatment of xerotic skin', *Nutrients*, 4(9), pp. 1213–1218. doi: 10.3390/nu4091213.
- Ryoo, I. J., Moon, E. Y., Kim, Y. H., Lee, I. S., Choo, S. J., and Bae, K. *et.al.* (2010) 'Anti-Skin aging effect of syriacusins from hibiscus syriacus on Ultraviolet-Irradiated human dermal fibroblast cells', *Biomolecules and Therapeutics*, 18(3), pp. 300–307. doi: 10.4062/biomolther.2010.18.3.300.
- Sabitha, M., Rejinold, N. S., Nair, A., Lakshmanan, V., Nair, S. V., and Jayakumar, R. (2013) 'Development and evaluation of 5-fluorouracil loaded chitin nanogels for treatment of skin cancer', *Carbohydrate Polymers*. Elsevier Ltd., 91(1), pp. 48–57. doi: 10.1016/j.carbpol.2012.07.060.
- Sacha, M., Weisbach, N., Pöhler, A. S., Demmerle, N., and Haltner, E. (2020) 'Comparisons of the histological morphology and in vitro percutaneous absorption of caffeine in shed snake skin and human skin', *Slovenian Veterinary*

- Research*, 57(2), pp. 71–81. doi: 10.26873/SVR-839-2020.
- Safitri, F. I., Nawangsari, D. and Febrina, D. (2021) ‘Overview: Application of Carbopol 940 in Gel’, 34(Ahms 2020), pp. 80–84. doi: 10.2991/ahsr.k.210127.018.
- Saikumar, D. and Prasanna J, L. (2021) ‘A Literature Review on Self Nanoemulsifying Drug Delivery System (SNEDDS)’, *International Journal of Pharmaceutical Sciences Review and Research*, 70(1), pp. 85–94. doi: 10.47583/ijpsrr.2021.v70i01.011.
- Schäfer, M. and Werner, S. (2011) ‘The cornified envelope: A first line of defense against reactive oxygen species’, *Journal of Investigative Dermatology*, 131(7), pp. 1409–1411. doi: 10.1038/jid.2011.119.
- Seweryn, A. (2018) ‘Interactions between surfactants and the skin – Theory and practice’, *Advances in Colloid and Interface Science*, 256, pp. 242–255. doi: 10.1016/j.cis.2018.04.002.
- Shah, I., Petroczi, A. and Naughton, D. P. (2012) ‘Method for simultaneous analysis of eight analogues of vitamin D using liquid chromatography tandem mass spectrometry’, *Chemistry Central Journal*. Chemistry Central Journal, 6(1), p. 1. doi: 10.1186/1752-153X-6-112.
- Sheshala, R., Anuar, N. K., Samah, N. H. A. and Wong, T. W. (2019) ‘In Vitro Drug Dissolution/Permeation Testing of Nanocarriers for Skin Application: a Comprehensive Review’, *AAPS PharmSciTech*, 20(164), pp. 1–28.
- Sheskey, P. J., Cook, W. and Cable, C. (2017) *Handbook of Pharmaceutical Excipients*. 8th edn. Edited by P. J. Sheskey, W. Cook, and C. Cable. UK: Pharmaceutical Press and American Pharmaceutical Association.
- Statista (2022) *Skin Care - Indonesia*. Available at: <https://www.statista.com/outlook/cmo/beauty-personal-care/skin-care/indonesia> (Accessed: 22 February 2023).
- Stefanovski, D., Moate, P. J. and Boston, R. C. (2003) ‘WinSAAM: A windows-based compartmental modeling system’, *Metabolism: Clinical and Experimental*, 52(9), pp. 1153–1166. doi: 10.1016/S0026-0495(03)00144-6.
- Su, R., Fan, W. Yu, Q., Dong, X., Qi, J., Zhu, Q. *et.al.* (2017) ‘Size-dependent penetration of nanoemulsions into epidermis and hair follicles: Implications for transdermal delivery and immunization’, *Oncotarget*, 8(24), pp. 38214–38226. doi: 10.18632/oncotarget.17130.

- Suh, H. and Jun, H. (1996) 'Effectiveness and Mode of Action of Isopropyl Myristate as a Permeation Enhancer for Naproxen through Shed Snake Skin', *J. Pharm. Pharmacol.*, 48, pp. 812–816.
- Tagliaferri, S., Porri, D., De Giuseppe, R., Manuelli, M., Alessio, F., and Cena, H (2019) 'The controversial role of Vitamin D as an antioxidant: results from randomised controlled trials', *Nutrition Research Reviews*, 32(1), pp. 99–105. doi: 10.1017/S0954422418000197.
- Takeuchi, H., Gomi, T., Shishido, M., Watanabe, H., and Suenobu, N. (2010) 'Neutrophil elastase contributes to extracellular matrix damage induced by chronic low-dose UV irradiation in a hairless mouse photoaging model', *Journal of Dermatological Science*. Japanese Society for Investigative Dermatology, 60(3), pp. 151–158. doi: 10.1016/j.jdermsci.2010.09.001.
- Tsai, Y. F. and Hwang, T. L. (2015) 'Neutrophil elastase inhibitors: A patent review and potential applications for inflammatory lung diseases (2010 - 2014)', *Expert Opinion on Therapeutic Patents*, 25(10), pp. 1145–1158. doi: 10.1517/13543776.2015.1061998.
- United States Pharmacopeial Convention (2008) 'USP 32 - NF 27'. Rockville: The United States Pharmacopeial Convention.
- US National Library of Medicine (2019) *Cholecalciferol*, *PubChem Open Chemistry Database*. Available at: https://pubchem.ncbi.nlm.nih.gov/compound/Vitamin_D3#section=Computed-Properties (Accessed: 25 January 2019).
- Wang, Z., Senn, T., Kalhorn, T., Zheng, X. E., Zheng, S., Davis, C. L. *et.al* (2011) 'Simultaneous measurement of plasma vitamin D3 metabolites, including 4 β ,25-dihydroxyvitamin D3, using liquid chromatography-tandem mass spectrometry', *Analytical Biochemistry*, 418(1), pp. 126–133. doi: 10.1016/j.ab.2011.06.043.
- Wickett, R. R. and Visscher, M. O. (2006) 'Structure and function of the epidermal barrier', *American Journal of Infection Control*, 34(10 SUPPL.), pp. 98–110. doi: 10.1016/j.ajic.2006.05.295.
- Williams, R. O., Sykora, M. A. and Mahaguna, V. (2001) 'Method to recover a lipophilic drug from hydroxypropyl methylcellulose matrix tablets', *AAPS PharmSciTech*, 2(2). doi: 10.1208/pt020208.
- Xu, X., Khan, M. A. and Burgess, D. J. (2012) 'A two-stage reverse dialysis in vitro dissolution testing method for passive targeted liposomes', *International Journal of Pharmaceutics*. Elsevier B.V., 426(1–2), pp. 211–218. doi: 10.1016/j.ijpharm.2012.01.030.



Xue, X., Cao, M., Ren, L., Qian, Y., and Chen, G. (2018) 'Preparation and Optimization of Rivaroxaban by Self-Nanoemulsifying Drug Delivery System (SNEDDS) for Enhanced Oral Bioavailability and No Food Effect', *AAPS PharmSciTech.* AAPS PharmSciTech, 19(4), pp. 1847–1859. doi: 10.1208/s12249-018-0991-6.

Zsiko, S., Csanyi, E., Kovacs, A., Budai-Szucs, M., Gacsi, A., and Berko, S. (2019) 'Methods to Evaluate Skin Penetration In Vitro', *Scientia Pharmaceutica*, 87(19). doi: 10.3390/scipharm87030019.