

## DAFTAR PUSTAKA

- Abd Sisak, M. A., Daik, R., & Ramli, S. (2017). Kajian Kesan Fasa Minyak dan Ko-Surfaktan Terhadap Sistem Mikroemulsi. *Malaysian Journal of Analytical Sciences*, 21(6), 1409–1416. <https://doi.org/10.17576/mjas-2017-2106-23>
- Albert, C. A. (2019). Nonsteroidal Anti-Inflammatory Drugs. In A. Abd-Elsayed (Ed.), *Pain a Review Guide* (pp. 237–243). Cham: Springer Nature Switzerland AG.
- Anggraeni, Y., Hendradi, E., & Purwanti, T. (2012). Karakteristik sediaan dan pelepasan Natrium Diklofenak Dalam Sistem Niosom Dengan Basis Gel Carbomer 940. *PharmaScientia*, 1(1), 1–15.
- Arora, P., & Mukherjee, B. (2002). Design, development, physicochemical, in vitro and in vivo evaluation of transdermal patches containing diclofenac diethyl ammonium salt. *Journal of Pharmaceutical Sciences*, 91, 2076–2089. <https://doi.org/10.1002/jps.10200>
- Bernardi, D. S., Pereira, T. A., Maciel, N. R., Bortoloto, J., Viera, G. S., Oliveira, G. C., & Rocha-Filho, P. A. (2011). Formation and stability of oil-in-water nanoemulsions containing rice bran oil: In vitro and in vivo assessments. *Journal of Nanobiotechnology*, 9, 1–9. <https://doi.org/10.1186/1477-3155-9-44>
- Bhowmik, D., Gopinath, H., Kumar, B. P., Duraivel, S., & Kumar, K. P. S. (2012). Recent Advances in Topical Drug Delivery System. *The Pharma Journal*, 1(09).
- BPOM. (2019). Natrium Diklofenak. Retrieved December 12, 2019, from Pusat Informasi Obat Nasional, website: <http://pionas.pom.go.id/monografi/natrium-diklofenak>
- Budiman, M. H. (2008). *Uji Stabilitas Fisik Dan Aktivitas Antioksidan Sediaan Krim Yang Mengandung Ekstrak Kering Tomat (Solanum lycopersicum L.)* (Universitas Indonesia). Retrieved from

- <http://lib.ui.ac.id/file?file=digital/126137-FAR.056-08-Uji stabilitas-HA.pdf>
- Chellapa, P., Mohamed, A. T., Keleb, E. I., Elmahgoubi, A., Eid, A. M., Issa, Y. S., & Elmarzugi, N. A. (2015). Nanoemulsion and Nanoemulgel as a Topical Formulation. *IOSR Journal of Pharmacy*, 5(10), 43–47. Retrieved from <http://www.iosrphr.org/papers/v5i10/F0510043047.pdf>
- Chime, S. A., Kenechukwu, F. C., & Attama, A. A. (2014). Nanoemulsions — Advances in Formulation, Characterization and Applications in Drug Delivery. *Application of Nanotechnology in Drug Delivery*, (December).
- <https://doi.org/10.5772/58673>
- Chuasawan, B., Binjesoh, V., Polli, J. E., Amidon, G. L., Junginger, H. E., Midha, K. K., ... Barends, D. M. (2009). Biowaiver Monographs for Immediate Release Solid Oral Dosage Forms: Diclofenac Sodium and Diclofenac Potassium. *Journal of Pharmaceutical Sciences*, 98, 1206–1219.
- <https://doi.org/10.1002/jps.21525>
- Deer, T. R., & Abd-Elsayed, A. (2019). Different Types of Pain. In A. Abd-Elsayed (Ed.), *Pain a Review Guide* (pp. 15–16). Cham: Springer Nature Switzerland AG.
- Eliza, W. (2015). *Formulasi Sediaan Mikroemulsi Minyak Atsiri Daun Jeruk Sambal (Citrus microcarpa Bunge) Dengan Variasi Tween 20 dan Uji Efektivitas Terhadap Propionibacterium acnes*. 1–13.
- Farinde, A. (2019). NSAID Classes. Retrieved January 2, 2020, from <https://emedicine.medscape.com/article/2172136-overview>
- Fitriani, E. W., Imelda, E., Cornelis, C., & Avanti, C. (2016). Karakterisasi dan Stabilitas Fisik Mikroemulsi Tipe A/M Dengan Berbagai Fase Minyak. *Pharmaceutical Sciences and Research*, 3(1), 31–44.
- <https://doi.org/10.7454/psr.v3i1.3221>
- Fong, A., & Schug, S. A. (2014). Pathophysiology of Pain: a Practical Primer. *Plastic and Reconstructive Surgery*, 134(4), 8S-14S.
- <https://doi.org/10.1097/PRS.0000000000000682>
- Goldberg, D. S., & McGee, S. J. (2011). Pain as a global public health priority. *BMC Public Health*, 11. <https://doi.org/10.1186/1471-2458-11-770>

- Gregorio-Jauregui, K., Cano Cabrera, J., Segura-Ceniceros, E., Martínez-Hernández, J., & Ilyina, A. (2009). A New Formulated Stable Papin-Pectin Aerosol Spray for Skin Wound Healing. *Biotechnology and Bioprocess Engineering*, 14, 450–456. <https://doi.org/10.1007/s12257-008-0268-0>
- GSK. (2017). Global Pain Index 2017 Research Report. *Global Report Findings*, 1–49.
- Gupta, A., Eral, H. B., Hatton, T. A., & Doyle, P. S. (2016). Nanoemulsions: Formation, properties and applications. *Soft Matter*, 12(11), 2826–2841. <https://doi.org/10.1039/c5sm02958a>
- Hadgraft, J., & Lane, M. E. (2011). Skin: The ultimate interface. *Physical Chemistry Chemical Physics*, 13(12), 5215–5222. <https://doi.org/10.1039/c0cp02943b>
- Haley, S. (2009a). Methylparaben. In R. C. Rowe, P. J. Sheskey, & M. E. Quinn (Eds.), *Handbook of Pharmaceutical Excipients* (Sixth Edn, pp. 441–445). London: Pharmaceutical Press.
- Haley, S. (2009b). Propylparaben. In R. C. Rowe, P. J. Sheskey, & M. E. Quinn (Eds.), *Handbook of Pharmaceutical Excipients* (Sixth Edn, pp. 596–598). London: Pharmaceutical Press.
- Harrold, M. W., & Zavod, R. M. (2014). Basic Concepts in Medicinal Chemistry. *Drug Development and Industrial Pharmacy*, 40(7), 988–988. <https://doi.org/10.3109/03639045.2013.789908>
- Holland, T., Chaouk, H., Asfaw, B., Goodrich, S., Hunter, A., & Francis, V. (2002). *Spray Hydogel Wound Dressing*. USA: United State Patent Application Publication.
- Indokemika. (2020). *Certificate of Analysis Tween 80*. Jakarta.
- Juan, J., Marlen, I., Luisa, C., Diaz-, R., Luisa, A., & Casas, N. (2012). Nanocarrier Systems for Transdermal Drug Delivery. *Recent Advances in Novel Drug Carrier Systems*. <https://doi.org/10.5772/50314>
- Kale, S. N., & Deore, S. L. (2016). Emulsion Micro Emulsion and Nano Emulsion : A Review. *Systematic Reviews in Pharmacy*, 8(1), 39–47. <https://doi.org/10.5530/srp.2017.1.8>

- Kamishita, T., Miyazaki, T., & Okuno, Y. (1992). *Spray Gel Base and Spray Gel Preparation Using Thereof*. USA: United State Patent Application Publication.
- Karunaratne, D. N., Pamunuwa, G., & Ranatunga, U. (2017). Introductory Chapter: Microemulsions. *Properties and Uses of Microemulsions*, (May), 1–14. <https://doi.org/10.5772/intechopen.68823>
- Khan, B. A., Akhtar, N., Khan, H. M. S., Waseem, K., Mahmood, T., Rasul, A., ... Khan, H. (2011). Basics of pharmaceutical emulsions: A review. *African Journal of Pharmacy and Pharmacology*, 5(25), 2715–2725. <https://doi.org/10.5897/AJPP11.698>
- Kumar, B. P., Chandiran, I. S., Bhavya, B., & Sindhuri, M. (2011). Microparticulate Drug Delivery System : A Review. *Indian Journal of Pharmaceutical Science & Research*, 1(1), 19–37.
- Lachman, Leon, Lieberman, H. A., & Kanig, J. L. (1994). *Teori dan Praktek Farmasi Industri* (3rd ed.). Jakarta: Penerbit Universitas Indonesia.
- Langdon, B., & Mullarney, M. (2009). Menthol. In R. C. Rowe, P. J. Sheskey, & M. E. Quinn (Eds.), *Handbook of Pharmaceutical Excipients* (Sixth Edn, pp. 433–435). London: Pharmaceutical Press.
- Lide, D. R. (2010). *CRC Handbook of Chemistry and Physics*. 1–9.
- MIMS. (2020). Diclofenac Concise Info. Retrieved January 2, 2020, from <http://mims.com/indonesia/drug/info/diclofenac/>
- Nair, B., & Taylor-Gjevre, R. (2010). A review of topical diclofenac use in musculoskeletal disease. *Pharmaceuticals*, 3(6), 1892–1908. <https://doi.org/10.3390/ph3061892>
- Nayak, A. K. (2010). Thermodynamic Study of The Diclofenac Sodium Solubility. *Chemistry*, 19(4), 121–128.
- Niethard, F. U., Gold, M. S., Solomon, G. S., Liu, J. M., Unkauf, M., Albrecht, H. H., & Elkik, F. (2005). Efficacy of topical diclofenac diethylamine gel in osteoarthritis of the knee. *Journal of Rheumatology*, 32(12), 2384–2392.
- Nisak, K. (2016). Uji Stabilitas Fisik dan Kimia Sediaan Gel Semprot Ekstrak Etanol Tumbuhan Paku (Nephrolepis falcata (Cav.) C. Chr.). In *Skripsi*

- Program Sarjana.* <https://doi.org/10.1016/j.marpolbul.2017.10.056>
- Osafo, N., Agyare, C., Obiri, D. D., & Antwi, A. O. (2017). *Mechanism of Action of Nonsteroidal AntiInflammatory Drugs.* <https://doi.org/dx.doi.org/10.5772/68090>
- Ostróżka-Cieślik, A., & Sarecka-Hujar, B. (2017). The Use of Nanotechnology in Modern Pharmacotherapy. *Multifunctional Systems for Combined Delivery, Biosensing and Diagnostics*, 139–158. <https://doi.org/10.1016/b978-0-323-52725-5.00007-1>
- Pamudji, J. S., Darijanto, S. T., & Rosa, S. (2017). Formulasi dan Evaluasi Mikroemulsi Minyak dalam Air Betametason 17-Valerat. *Acta Pharmaceutica Indonesia*, 37(4), 140–146.
- Pappinen, S., & Urtti, A. (2005). Microemulsions in topical drug delivery. *Percutaneous Penetration Enhancers, Second Edition*, 109–116. <https://doi.org/10.1201/9781420039207.ch9>
- Patel, V., Kukadiya, H., Mashru, R., Surti, N., & Mandal, S. (2010). Development of Microemulsion for Solubility Enhancement of Clopidogrel. *Iranian Journal of Pharmaceutical Research*, 9(4), 327–334. <https://doi.org/10.22037/ijpr.2010.898>
- PubChem. (2019). National Center for Biotechnology Information. Retrieved December 12, 2019, from U.S. National Library of Medicine website: <https://pubchem.ncbi.nlm.nih.gov/>
- Purnamasari, S. D. (2012). Formulasi dan Uji Penetrasi Natrium Diklofenak dalam Emulsi dan Mikroemulsi menggunakan Virgin Coconut Oil (VCO) sebagai Fase Minyak. *Universitas Indonesia Skripsi*, 1–133.
- Quinn, M. (2009). Alcohol. In R. C. Rowe, P. J. Sheskey, & M. E. Quinn (Eds.), *Handbook of Pharmaceutical Excipients* (Sixth Edn, pp. 17–19). London: Pharmaceutical Press.
- Ramli, S., Chyi, K. T., Zainuddin, N., Mokhtar, W. N. A. W., & Abdul Rahman, I. (2019). The Influence of Surfactant/Co-Surfactant Hydrophilic-Lipophilic Balance on The Formation of Limonene-Based Microemulsion as Vitamin C Carrier. *Sains Malaysiana*, 48(5), 1035–1042. <https://doi.org/10.17576/jsm->

2019-4805-12

- Rieger, M. (1994). Emulsi. In L Lachman, H. A. Lieberman, & J. L. Kanig (Eds.), *Teori dan Praktek Farmasi Industri I* (pp. 1029–1108). Jakarta: UI Press.
- Sastrohamidjojo, H. (2005). *Kimia Organik, Stereokimia, Karbohidrat, Lemak, dan Protein*. Yogyakarta: Gadjah Mada University Press.
- Seifert, R. (2019). Pain Pharmacology. In *Basic Knowledge of Pharmacology* (pp. 117–131). [https://doi.org/10.1007/978-3-030-18899-3\\_10](https://doi.org/10.1007/978-3-030-18899-3_10)
- Shafira, U., Gadri, A., & Fetri, L. (2015). Formulasi Sediaan Spray Gel Serbuk Getah Tanaman Jarak Cina (*Jatropha Multifida Linn.*) dengan Variasi Jenis Polimer Pembentuk Film dan Jenis Plasticizer. *Prosiding Penelitian Sivitas Akademika Unisba*, 562–567.
- Sheng, J. (2009). Castor Oil. In R. C. Rowe, P. J. Sheskey, & M. E. Quinn (Eds.), *Handbook of Pharmaceutical Excipients* (Sixth Edn, pp. 126–127). London: Pharmaceutical Press.
- Shur, J. (2009). Polyoxyethylene Stearates. In *Handbook of Pharmaceutical Excipients* (pp. 554–556).
- Suciati, T., & Patricia, L. (2012). Formulasi Natrium Ascorbyl Phosphate dalam Mikroemulsi A/M VCO. *Acta Pharmaceutica Indonesia*, 37(3), 90–94.
- Suyudi, S. D. (2014). Formulasi Gel Semprot Menggunakan Kombinasi Karbopol 940 Dan Hidroksipropil Metilselulosa (HPMC) Sebagai Pembentuk Gel. *Skripsi*, (Skripsi).
- Sweetman, S. C. (2009). *Martindale : The Complete Drug Reference* (36th ed.; S. C. Sweetman, Ed.). London: Phamaceutical Press.
- Timin, A. S., Litvak, M. M., Gorin, D. A., Atochina-Vasserman, E. N., Atochin, D. N., & Sukhorukov, G. B. (2018). Cell-Based Drug Delivery and Use of Nano-and Microcarriers for Cell Functionalization. *Advanced Healthcare Materials*, 7(3), 1–19. <https://doi.org/10.1002/adhm.201700818>
- Wallick, D. (2009). Polyethylene Glycol. In *Handbook of Pharmaceutical Excipients* (pp. 517–522).
- Wani, A., Sanghani, C., & Wani, S. (2018). Formulation, Characterization, and in Vitro Evaluation of Novel Microemulsion-Based Spray for Topical Delivery

- of Isotretinoin. *Asian Journal of Pharmaceutical and Clinical Research*, 11(10), 226–232. <https://doi.org/10.22159/ajpcr.2018.v11i10.27019>
- Wardhana, Y. W., Bardi, S., Hasanah, A. N., Dwiestri, P. O., & Khoirunisa, A. (2014). In Vitro Permeability Study Preparations Gel Diclofenac Sodium and Diethyl amine Diclofenac. *Indonesian Journal of Pharmaceutical Science and Technology*, 1(2), 58–64. <https://doi.org/10.15416/ijpst.v1i2.7514>
- Williams, A. C. (2003). *Transdermal and Topical Drug Delivery*. London: Pharmaceutical Press.
- Zaky, S., Zaky, C. S., & Abd-Elsayed, A. (2019). Anatomy of The Nervous System. In A. Abd-Elsayed (Ed.), *Pain a Review Guide* (pp. 3–8). Cham: Springer Nature Switzerland AG.