

DAFTAR PUSTAKA

- Abraham, H.M.A., White, C.M., White, W.B. 2015. The Comparative Efficacy and Safety of the Angiotensin Receptor Blockers in the Management of Hypertension and Other Cardiovascular Diseases. *Drug Saf.* 38. 33–54.
- Ahad, A., Al-Mohizea, A.M., Al-Jenoobi, F.I., Aqil, M. 2016. Transdermal delivery of angiotensin II receptor blockers (ARBs), angiotensin-converting enzyme inhibitors (ACEIs) and others for management of hypertension. *Drug Deliv.* 23. 579–590.
- Aisyah, A.N., Yusuf, N.A., Ismail, Hasliah. 2017. Pengaruh Variasi Konsentrasi Emulgator Phytocream Terhadap Kestabilan Fisik Formula Krim Ekstrak Etanol Daun Kelor (*Moringa oleifera L*) dalam Menghambat *Propionibacterium acnes*. *Pros. Semin. Nas. APTFI II*. 29–42.
- Al-Akayleh, F., Mohammed Ali, H.H., Ghareeb, M.M., Al-Remawi, M. 2019. Therapeutic deep eutectic system of capric acid and menthol: Characterization and pharmaceutical application. *J. Drug Deliv. Sci. Technol.* 53.
- Alhadid, A., Mokrushina, L., Minceva, M. 2020. Design of deep eutectic systems: A simple approach for preselecting eutectic mixture constituents. *Molecules*. 25.
- Alkilani, A.Z., McCrudden, M.T.C., Donnelly, R.F. 2015. Transdermal drug delivery: Innovative pharmaceutical developments based on disruption of the barrier properties of the stratum corneum. *Pharmaceutics*. 7. 438–470.
- Allen, L.V.. J., Ansel, H.C. 2014. *Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems*, 10th ed. Lippincott Williams & Wilkins, Baltimore.
- Amin, S., Sarfenejad, A., Ahmad, J., Kohli, K., Mir, S. 2012. Nanovesicular Transfersomes for Enhanced Systemic Delivery of Telmisartan. *Adv. Sci. Eng. Med.* 5. 299–308.
- Aparna, C., Srinivas, P., Rao Patnaik, K.S.K. 2015. Enhanced Transdermal Permeability Of Telmisartan By A Novel Nanoemulsion Gel. *Int J Pharm Pharm Sci.* 7. 335–342.
- Balitbangkes RI. 2018. *Laporan Nasional Riskesdas 2018*. Jakarta.

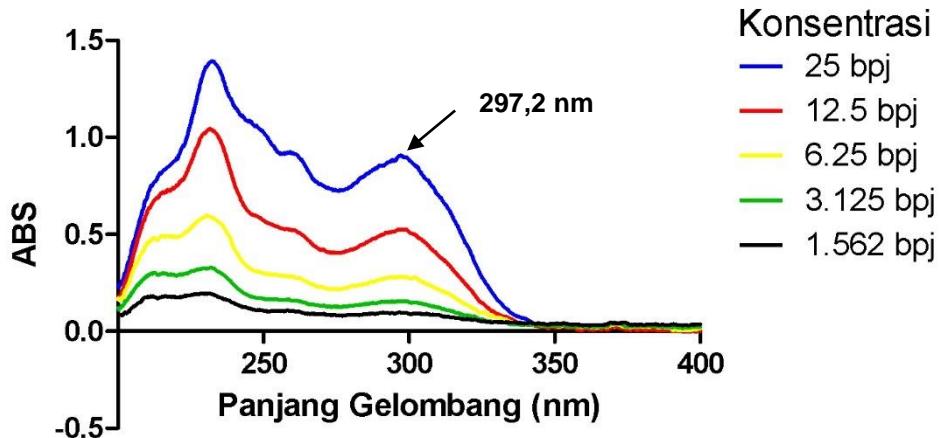
- Berton, P., Di Bona, K.R., Yancey, D., Rizvi, S.A.A., Gray, M., Gurau, G., Shamshina, J.L., Rasco, J.F., Rogers, R.D. 2017. Transdermal Bioavailability in Rats of Lidocaine in the Forms of Ionic Liquids, Salts, and Deep Eutectic. *ACS Med. Chem. Lett.* 8. 498–503.
- Boscariol, R., Caetano, É.A., Silva, E.C., Oliveira, T.J., Rosa-Castro, R.M., Vila, M.M.D.C., Balcão, V.M. 2021. Performance of choline geranate deep eutectic solvent as transdermal permeation enhancer: An in vitro skin histological study. *Pharmaceutics.* 13.
- das Neves, J., Bahia, M.F. 2006. Gels as vaginal drug delivery systems. *Int. J. Pharm.* 318. 1–14.
- Ditjen Farmalkes. 2020. *Farmakope Indonesia*, ed. 6. Kementerian Kesehatan RI, Jakarta.
- Gamsjäger, H., Lorimer, J.W., Scharlin, P., Shaw, D.G. 2008. Glossary of terms related to solubility: (IUPAC Recommendations 2008). *Pure Appl. Chem.* 80. 233–276.
- Griffin, P.J., Cosby, T., Holt, A.P., Benson, R.S., Sangoro, J.R. 2014. Charge transport and structural dynamics in carboxylic-acid-based deep eutectic mixtures. *J. Phys. Chem. B.* 118. 9378–9385.
- Harada, L.K., Pereira, J.F.B., Campos, W.F., Silva, E.C., Moutinho, C.G., Vila, M.M.D.C., Oliveira, J.M., Teixeira, J.A., Balcão, V.M., Tubino, M. 2018. Insights into protein-ionic liquid interactions aiming at macromolecule delivery systems. *J. Braz. Chem. Soc.* 29. 1983–1998.
- Jones, D. 2008. *FASTtrack: Pharmaceutics - Dosage Form and Design*. Pharmaceutical Press, London.
- Kamatou, G.P.P., Vermaak, I., Viljoen, A.M., Lawrence, B.M. 2013. Menthol: A simple monoterpenene with remarkable biological properties. *Phytochemistry.* 96. 15–25.
- Katzung, B.G., Masters, S.B., Trevor, A.J. 2017. *Basic & Clinical Pharmacology*, 12th ed. The McGraw-Hill Companies, New York.
- Kundu, S., Kumari, N., Soni, S.R., Ranjan, S., Kumar, R., Sharon, A., Ghosh, A. 2018. Enhanced Solubility of Telmisartan Phthalic Acid Cocrystals within the pH Range of a Systemic Absorption Site. *ACS Omega.* 3. 15380–15388.

- Li, Z., Lee, P.I. 2016. Investigation on drug solubility enhancement using deep eutectic solvents and their derivatives. *Int. J. Pharm.* 505. 283–288.
- Liebert, M.A. 1988. Final Report on the Safety Assessment of DMDM Hydantoin. *J. Am. Coll. Toxicol.* 7. 245–277.
- Martins, M.A.R., Crespo, E.A., Pontes, P.V.A., Silva, L.P., Bülow, M., Maximo, G.J., Batista, E.A.C., Held, C., Pinho, S.P., Coutinho, J.A.P. 2018. Tunable Hydrophobic Eutectic Solvents Based on Terpenes and Monocarboxylic Acids. *ACS Sustain. Chem. Eng.* 6. 8836–8846.
- Mills, K.T., Stefanescu, A., He, J. 2020. The global epidemiology of hypertension. *Nature Reviews Nephrology*.
- Nief, R.A., Hussein, A.A. 2014. Preparation and Evaluation of Meloxicam Microsponges as Transdermal Delivery System. *Iraqi J. Pharm. Sci.* 23. 62–74.
- Pandey, S., Abdul, A.P.J., Anchal, S., Swarnima, P., Arpita, S., Aqil, S., Nitish, P. 2021. Cream: A Topical Drug Delivery System (TDDS). *Eur. J. Pharm. Med. Res.* 8.
- Park, J., Cho, W., Cha, K.H., Ahn, J., Han, K., Hwang, S.J. 2013. Solubilization of the poorly water soluble drug, telmisartan, using supercritical anti-solvent (SAS) process. *Int. J. Pharm.* 441. 50–55.
- Płotka-Wasylka, J., de la Guardia, M., Andrusch, V., Vilková, M. 2020. Deep eutectic solvents vs ionic liquids: Similarities and differences. *Microchem. J.* 159.
- Rai, U.S., George, S. 1992. Physicochemical studies on organic eutectics and the 1:1 addition compound: benzidine--naphthol system. *J. Mater. Sci.* 27. 711–718.
- Rowe, R.C., Sheskey, P.J., Quinn, M.E. 2009. *Handbook of Pharmaceutical Excipients*, 6th ed. Pharmaceutical Press and American Pharmacists Association., London.
- Setyawan, E.I., Pratama, P.Y.A., Budiputra, D.K. 2015. Optimasi Formula Matriks Patch Ketoprofen Transdermal Menggunakan Kombinasi Asam Oleat dan Minyak Atsiri Bunga Cempaka Putih (*Michelia alba*) sebagai Permeation Enhancer. *J. Farm. Udayana.* 4. 37–44.

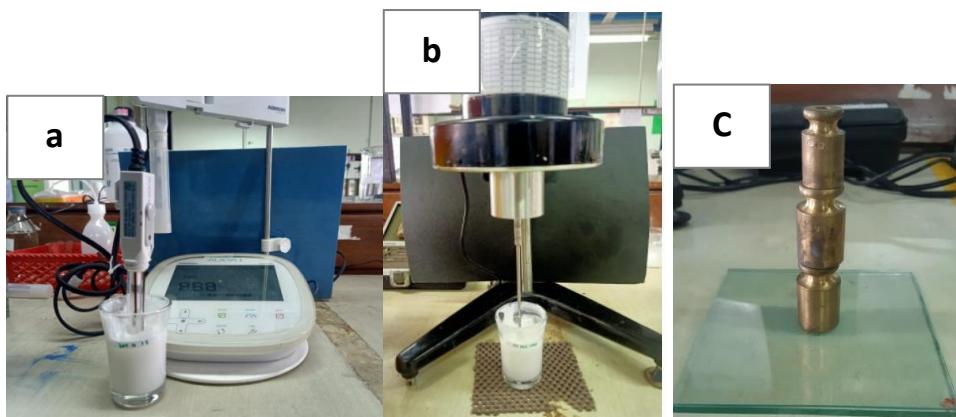
- Singh, A., Singh, P. 2016. Formulation and Evaluation of Prolonged Release Transdermal Drug Delivery System of Telmisartan for the Treatment of Hypertension. *Int. J. Pharm. Res. Sch.* 5. 128–134.
- Tiecco, M., Cappellini, F., Nicoletti, F., Del Giacco, T., Germani, R., Di Profio, P. 2019. Role of the hydrogen bond donor component for a proper development of novel hydrophobic deep eutectic solvents. *J. Mol. Liq.* 281. 423–430.
- Tuntarawongsa, S., Phaechamud, T. 2012. Menthol, borneol, camphor and WS-3 eutectic mixture. In: *Advanced Materials Research*. pp. 355–358.
- Unger, T., Borghi, C., Charchar, F., Khan, N.A., Poulter, N.R., Prabhakaran, D., Ramirez, A., Schlaich, M., Stergiou, G.S., Tomaszewski, M., Wainford, R.D., Williams, B., Schutte, A.E. 2020. 2020 International Society of Hypertension Global Hypertension Practice Guidelines. *Hypertension*. 75. 1334–1357.
- Valle-González, E.R., Jackman, J.A., Yoon, B.K., Park, S., Sut, T.N., Cho, N.J. 2018. Characterizing How Acidic pH Conditions Affect the Membrane-Disruptive Activities of Lauric Acid and Glycerol Monolaurate. *Langmuir*. 34. 13745–13753.
- Vig, K., Chaudhari, A., Tripathi, S., Dixit, S., Sahu, R., Pillai, S., Dennis, V.A., Singh, S.R. 2017. Advances in skin regeneration using tissue engineering. *Int. J. Mol. Sci.* 18.
- Wang, H., Meng, F. 2017. The permeability enhancing mechanism of menthol on skin lipids: a molecular dynamics simulation study. *J. Mol. Model.* 23.
- Wells, B.G., Schwinghammer, T.L., DiPiro, J.T., DiPiro, C. V. 2017. *Pharmacotherapy Handbook*, 10th ed. McGraw-Hill Education, New York.
- Widodo, H. 2013. *Ilmu Meracik Obat untuk Apoteker*. D-Medika. Yogyakarta.
- Yousef, H., Sharma, S. 2017. Anatomy, Skin (Integument), Epidermis. In: *Anatomy of the Human Skin*.
- Zhou, B., Perel, P., Mensah, G.A., Ezzati, M. 2021. Global epidemiology, health burden and effective interventions for elevated blood pressure and hypertension. *Nat. Rev. Cardiol.* 18. 785–802.

LAMPIRAN

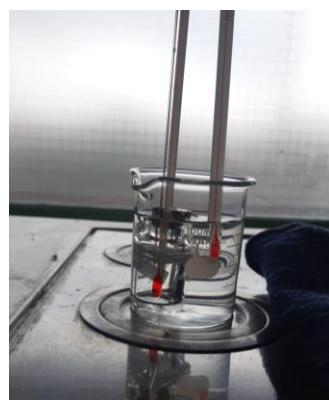
Lampiran 1. Dokumentasi Penelitian



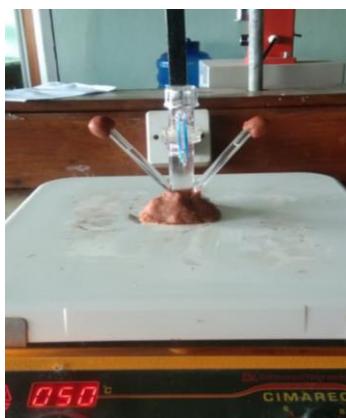
Gambar 22. Hasil identifikasi telmisartan dalam PBS pada spektrofotometer UV-Vis



Gambar 23. (a) Evaluasi pH, (b) Evaluasi viskositas, dan (c) Evaluasi daya sebar



Gambar 24. Uji penentuan titik eutektik



Gambar 25. Alat sel difusi Franz



Gambar 26. Spektrofotometer UV-Vis