

## DAFTAR PUSTAKA

1. Sharma G, Saini MK, Thakur K, Kapil N, Garg NK, Raza K, et al. Aceclofenac cocrystal nanoliposomes for rheumatoid arthritis with better dermatokinetic attributes: A preclinical study. *Nanomedicine*. 2017;12(6):615–38.
2. Pekamwar SS, Kulkarni DA. Development and evaluation of bicomponent cocrystals of aceclofenac for efficient drug delivery with enhanced solubility and improved dissolution. *Indian Drugs*. 2021;58(8):54–60.
3. Sipos E, Kósa N, Kazsoki A, Szabó ZI, Zelkó R. Formulation and characterization of aceclofenac-loaded nanofiber based orally dissolving webs. *Pharmaceutics*. 2019;11(8):1–11.
4. Neupane R, Boddu SHS, Renukuntla J, Babu RJ, Tiwari AK. Alternatives to biological skin in permeation studies: Current trends and possibilities. *Pharmaceutics*. 2020;12(2).
5. Shakeel F, Baboota S, Ahuja A, Ali J, Aqil M, Shafiq S. Nanoemulsions as vehicles for transdermal delivery of aceclofenac. *AAPS PharmSciTech*. 2007;8(4):91–8.
6. Hua L, Weisan P, Jiayu L, Hongfei L. Preparation and evaluation of aceclofenac microemulsion for transdermal delivery system. *Pharmazie*. 2004;59(4):274–8.
7. Yogeshvar Tyagi. Liquid crystals: An approach to different state of matter. *Pharma Innov J*. 2018;7(5):540–5.
8. Agustin R. Pembentukan dan Karkterisasi Kristal Cair Kitosan sebagai Sistem Pembawa Sediaan Transdermal. Inst Teknol Bandung. 2021;
9. Müller-Goymann CC. Physicochemical characterization of colloidal drug delivery systems such as reverse micelles, vesicles, liquid crystals and nanoparticles for topical administration. *Eur J Pharm Biopharm*. 2004;58(2):343–56.
10. Hegmann T, Qi H, Marx VM. Nanoparticles in liquid crystals: Synthesis, self-assembly, defect formation and potential applications. *J Inorg Organomet Polym Mater*. 2007;17(3):483–508.
11. Kazemi M, Varshosaz J, Tabbakhian M. Preparation and Evaluation of Lipid-Based Liquid Crystalline Formulation of Fenofibrate. *Adv Biomed Res*. 2018;7(1):126.
12. Wesam, RK., Hiroarki, T., Kenji. Percutaneous Penetration Enhancers Chemical Methods in Penetration Enhancement. New York: Springer Berlin Heidelberg; 2015.
13. Yan YL, Jia XG, Meng M, Qu CT. Foam superstabilization by lamellar liquid crystal gels. *Chem Lett*. 2011;40(3):261–3.
14. Iolascon G, Giménez S, Mogyorósi D. A review of aceclofenac: Analgesic

- and anti-inflammatory effects on musculoskeletal disorders. *J Pain Res.* 2021;14:3651–63.
15. Jessica A, Agustina A, Zaini E. Pembentukan dan Karakterisasi Multikomponen Kristal Aseklofenak – Asam Suksinat Dengan Metode Solvent Drop Grinding. *J Sains Farm Klin.* 2022;9(sup):138.
  16. DiLisi GA. An Introduction to Liquid Crystals. DeLuca JJ, editor. San Rafael California: Morgan & Claypool Publisher; 2019.
  17. Rajak P, Nath LK, Bhuyan B. Liquid crystals: An approach in drug delivery. *Indian J Pharm Sci.* 2019;81(1):11–23.
  18. Rajabalaya R, Musa MN, Kifli N, David SR. Oral and transdermal drug delivery systems: Role of lipid-based lyotropic liquid crystals. *Drug Des Devel Ther.* 2017;11:393–406.
  19. Rajak P, Nath LK B. Review article: liquid crystals: an approach in drug delivery. *Indian J Pharm Sci.* 2018;8(1):11–21.
  20. Mo J, Milleret G, Nagaraj M. Liquid crystal nanoparticles for commercial drug delivery. *Liq Cryst Rev.* 2017;5(2):69–85.
  21. Andrienko D. Introduction to liquid crystals. *J Mol Liq.* 2018;267:520–41.
  22. Chavda VP, Dawre S, Pandya A, Vora LK, Modh DH, Shah V, et al. Lyotropic liquid crystals for parenteral drug delivery. *J Control Release.* 2022;349(July):533–49.
  23. Silvestrini AVP, Caron AL, Viegas J, Praça FG, Bentley MVLB. Advances in lyotropic liquid crystal systems for skin drug delivery. *Expert Opin Drug Deliv.* 2020;17(12):1781–805.
  24. Liu J, Cheng R, Heimann K, Wang Z, Wang J, Liu F. Temperature-sensitive lyotropic liquid crystals as systems for transdermal drug delivery. *J Mol Liq.* 2021;326:115310.
  25. Yhirayha C, Soontaranon S, Wittaya-Areekul S, Pitaksuteepong T. Formulation of lyotropic liquid crystal containing mulberry stem extract: Influences of formulation ingredients on the formation and the nanostructure. *Int J Cosmet Sci.* 2014;36(3):213–20.
  26. Lombardo D, Kiselev MA, Magazù S, Calandra P. Amphiphiles self-assembly: Basic concepts and future perspectives of supramolecular approaches. *Adv Condens Matter Phys.* 2015;2015.
  27. Mir M, Ahmed N, Rehman A ur. Recent applications of PLGA based nanostructures in drug delivery. *Colloids Surfaces B Biointerfaces.* 2017;159:217–31.
  28. Chen Y, Ma P, Gui S. Cubic and hexagonal liquid crystals as drug delivery systems. *Biomed Res Int.* 2014;2014.
  29. Rapalli VK, Waghule T, Hans N, Mahmood A, Gorantla S, Dubey SK, et al.

- Insights of lyotropic liquid crystals in topical drug delivery for targeting various skin disorders. *J Mol Liq.* 2020;315:113771.
30. Fonseca-Santos B, dos Santos AM, Rodero CF, Daflon Gremião MP, Chorilli M. Design, characterization, and biological evaluation of curcumin-loaded surfactant-based systems for topical drug delivery. *Int J Nanomedicine.* 2016;11:4553–62.
  31. Kawai M, Ibaraki H, Takashima Y, Kanazawa T, Okada H. Development of a Liquid Crystal Formulation that Can Penetrate the Stratum Corneum for Intradermal Delivery of Small Interfering RNA. *Mol Pharm.* 2021;18(3):1038–47.
  32. Waghule T, Dabholkar N, Gorantla S, Rapalli VK, Saha RN, Singhvi G. Quality by design (QbD) in the formulation and optimization of liquid crystalline nanoparticles (LCNPs): A risk based industrial approach. *Biomed Pharmacother.* 2021;141:111940.
  33. Shanks RA, Staszczak D. Thermal and optical characterization of polymer-dispersed liquid crystals. *Int J Polym Sci.* 2012;2012.
  34. Chiari- BG, Silva BL. Physicochemical characterization of drug nanocarriers. 2017;4991–5011.
  35. Stegemeyer H. Topics in Physical Chemistry Volume 3. New York: Springer; 1994.
  36. Supardi. Karakterisasi Polimer Main-Chain Liquid Crystal Elastomers (MCLCEs) sebagai Kandidat Otot Tiruan Manusia. Universitas Negeri Yogyakarta; 2015.
  37. Leyva-Porras C, Cruz-Alcantar P, Espinosa-Sol V, Saavedra-Leos MZ. Application of Differential Scanning Calorimetry (DSC) and Modulated Differential Scanning. *Polymers (Basel).* 2019;12(5):1–21.
  38. Giuliano M, Asia L, Onoratini G, Mille G. Applications of diamond crystal ATR FTIR spectroscopy to the characterization of ambers. *Spectrochim Acta - Part A Mol Biomol Spectrosc.* 2007;67(5):1407–11.
  39. Sulistyani M, Huda N. Perbandingan Metode Transmisi dan Reflektansi Pada Pengukuran Polistirena Menggunakan Instrumentasi Spektroskopi Fourier Transform Infra Red. *Indones J Chem Sci.* 2018;7(2):195–8.
  40. Rastogi V, Yadav P. Transdermal drug delivery system: An overview. *Asian J Pharm.* 2012;6(3).
  41. Madani SY, Mandel A, Seifalian AM. A concise review of carbon nanotube's toxicology. *Nano Rev.* 2013;4(1):21521.
  42. Bartosova L, Bajgar J. Transdermal Drug Delivery In Vitro Using Diffusion Cells. *Curr Med Chem.* 2012;19(27):4671–7.
  43. Rahmadasmi N. Pembentukan Kristal Cair dari Multikomponen Kristal Asam Usnat\_N-methyl-D-glucamine Sebagai Sistem Penghantaran

- Transdermal. Universitas Andalas; 2023.
44. Abd E, Yousef SA, Pastore MN, Telaprolu K, Mohammed YH, Namjoshi S, et al. Skin models for the testing of transdermal drugs. *Clin Pharmacol Adv Appl*. 2016;8:163–76.
  45. Binder L, Mazál J, Petz R, Klang V, Valenta C. The role of viscosity on skin penetration from cellulose ether-based hydrogels. Vol. 25, *Skin Research and Technology*. 2019. p. 725–34.
  46. Bajaj S, Singla D SN. Stability testing of pharmaceutical products. *Appl Pharm Sci*. 2012;02(03):129–38.
  47. Rohman A. Validasi dan Penjaminan Mutu Metode Analisis Kimia. Yogyakarta: Gadjah Mada University Press; 2014.
  48. Afifah DA, Muslihudin MM, Cendekia D. Implementasi Pengendalian Kualitas Akurasi Dan Presisi Hasil Analisis Protein. *J Anal Farm*. 2021;6(1):17–24.
  49. Arifah F. Pembentukan dan Karakterisasi Kristal Cair Piperin-Asam Suksinat sebagai Sediaan Transdermal. Universitas Andalas; 2023.
  50. Putri AN, Maslina P, Torizellia C. Formulasi Dan Stabilitas Sediaan Vanishing Cream Ekstrak Etanol 96% Daun KERSEN (*Muntingia Calabura* L.) Sebagai Sunscreen Pelindung Kulit. *J Ilmu Kefarmasian*. 2022;3(2):342–8.
  51. Kumar P, Sharma DK, Ashawat MS. Topical creams of piperine loaded lipid nanocarriers for management of atopic dermatitis: development, characterization, and in vivo investigation using BALB/c mice model. *J Liposome Res [Internet]*. 2022;32(1):62–73.
  52. Chandra D. Pengujian Penetrasi in-Vitro Sediaan Gel , Krim , Sebagai Antiselulit. *J Ilm Farm Imelda*. 2019;3(1):15–23.
  53. Djalil AD, Setyawan H, Gumelar MI, Nurulita NA, Budiman A. Antioxidant potentials of virgin olive oil and virgin coconut oil and its cream formulation. *J Phys Conf Ser*. 2019;1402(5).
  54. K. Gurpreet and S. K. Singh. Review of Nanoemulsion Formulation and Characterization Techniques. *Indian J Pharm Sci*. 2018;80(5):781–9.
  55. O'Malley B. European Pharmacopoeia. *Br Med J*. 1971;4(5790).
  56. Allen L V. *Handbook of Pharmaceutical Excipients*, Sixth Edition. Rowe, RC., Sheskey PJ QM, editor. London: Pharmaceutical Press and American Pharmacists Association; 2009.
  57. Jadhav C, Kate VK, Payghan SA. Formulation and Evaluation of Antifungal Non-Aqueous Microemulsion for Topical Drug Delivery of Griseofulvin. *Inven Impact Pharm Tech*. 2015;2015(1):38–50.
  58. Mirtaheri B, Shokouhimehr M, Beitollahi A. Synthesis of mesoporous

- tungsten oxide by template-assisted sol–gel method and its photocatalytic degradation activity. *J Sol-Gel Sci Technol* [Internet]. 2017;82(1):148–56.
59. Marwah M, Magarkar A, Ray D, Aswal V, Bunker A, Nagarsenker M. Glyceryl Monostearate: Probing the Self Assembly of a Lipid Amenable to Surface Modification for Hepatic Targeting. *J Phys Chem C*. 2018;122(38):22160–9.
  60. Lancelot A, Sierra T, Serrano JL. Nanostructured liquid-crystalline particles for drug delivery. *Expert Opin Drug Deliv*. 2014;11(4):547–64.
  61. Harmita. Petunjuk Pelaksanaan Validasi dan Cara Penggunaannya. Maj Ilmu Kefarmasian. 2004;1(3):117.
  62. Tambade SA, Aloorkar NH, Dabane NS, Osmani RM, Kale BB, Indalkar YR. American Journal of Advanced Drug Delivery Formulation and Evaluation of Novel Gel Containing Liquid Crystals of Naproxen. *Am J Adv Drug Deliv* [Internet]. 2014;2(3):364–86.
  63. Hardani. Buku Ajar Farmasi Fisika. Yogyakarta: Samudra Biru (Anggota IKAPI); 2022.
  64. Tari M, Indriani O, Studi P, Farmasi S, Tinggi S, Kesehatan I, et al. Formulasi dan Uji Stabilitas Fisik Sediaan Krim Ekstrak Sembung Rambat (*Mikania micrantha* Kunth). 2023;15(1):192–211.

