

DAFTAR PUSTAKA

1. Presley B. Ticagrelor : Antagonis P2Y12. *Medikamen*. 2013;(20).
2. Tao L, Ren S, Zhang L, Liu W, Zhao Y, Chen C, et al. A Review of the Role of the Antiplatelet Drug Ticagrelor in the Management of Acute Coronary Syndrome, Acute Thrombotic Disease, and Other Diseases. *Medical Science Monitor*. 2022;28.
3. Drug Approval Package: Brilinta (ticagrelor) NDA #022433 [Internet]. [cited 2023 Nov 20]. Available from: https://www.accessdata.fda.gov/drugsatfda_docs/nda/2011/022433orig1s000toc.cfm
4. Bhalani D V., Nutan B, Kumar A, Singh Chandel AK. Bioavailability Enhancement Techniques for Poorly Aqueous Soluble Drugs and Therapeutics. *Biomedicines*. 2022;10(9):2055.
5. Bhairav BA, Bachhav JK, Saudagar RB. Review on Solubility Enhancement Techniques. *Asian Journal of Pharmaceutical Research*. 2016;6(3):175.
6. Kanikkannan N. Technologies to Improve the Solubility, Dissolution and Bioavailability of Poorly Soluble Drugs. *J Anal Pharm Res*. 2018;7(1).
7. Shane NLJ, Chamle AH, Vasantharaju, Pai A, Pai G, Sathyanarayana MB. Fabrication and Solid State Characterization of Ticagrelor Co-crystals with Improved Solubility and Dissolution. *Jawa Journal of Pharmaceutical Quality Assurance*. 2017;8(1):1–8.
8. Inam M, Wu J, Shen J, Phan CU, Tang G, Hu X. Preparation and Characterization of Novel Pharmaceutical Co-crystals: Ticagrelor with Nicotinamide. *Crystals (Basel)*. 2018;8(9).
9. Kim SJ, Lee HK, Na JAWA, Bang KH, Lee HJ, Wang M, et al. A Novel Composition of Ticagrelor by Solid Dispersion Technique for Increasing Solubility and Intestinal Permeability. *Int J Pharm*. 2019;555:11–8.
10. Bayoumi AA. Enhancement of Solubility of a Poorly Soluble Antiplatelet Aggregation Drug by Cogrounding Technique. *Asian Journal of Pharmaceutical and Clinical Research*. 2018;11(10):340–4.
11. Maleki A, Kettiger H, Schoubben A, Rosenholm JM, Ambrogi V, Hamidi M. Mesoporous Silica Materials: From Physico-chemical Properties to Enhanced Dissolution of Poorly Water-soluble Drugs. Vol. 262, *Journal of Controlled Release*. Elsevier B.V.; 2017. P. 329–47.

12. Hong S, Shen S, Tan DCT, Ng WK, Liu X, Chia LSO, et al. High Drug Load, Stable, Manufacturable and Bioavailable Fenofibrate Formulations in Mesoporous Silica: A Comparison of Spray Drying Versus Solvent Impregnation Methods. *Drug Deliv.* 2016;23(1):316–27.
13. Mccarthy CA, Ahern RJ, Dontireddy R, Ryan KB, Crean AM. Mesoporous Silica Formulation Strategies for Drug Dissolution Enhancement: A Review. *Expert Opin Drug Deliv.* 2016;13(1):93–108.
14. Ambrogi V, Perioli L, Pagano C, Marmottini F, Ricci M, Sagnella A, et al. Use of SBA-15 for Furosemide Oral Delivery Enhancement. *European Journal of Pharmaceutical Sciences.* 2012;46(1–2):43–8.
15. Reddy VP. Organofluorine Pharmaceuticals. In: *Organofluorine Compounds in Biology and Medicine.* Elsevier; 2015. P. 133–78.
16. Bohlin M, Cosgrove S, Lassen B. New crystalline and amorphous form of a triazolo(4,5-d)pyrimidine compound. WO 01/92262 A1. 2001;
17. Khan AJ, Song J, Ahmed K, Rahim A, Onófrío Volpe PL, Rehman F. Mesoporous Silica MCM-41, SBA-15 and Derived Bridged Polysilsesquioxane SBA-PMDA for the Selective Removal of Textile Reactive Dyes from Wastewater. *J Mol Liq.* 2020;298:111957.
18. Liu X, Che S. Enhanced Release of the Poorly Soluble Drug Itraconazole Loaded in Ordered Mesoporous Silica. *Sci China Chem.* 2015 *Jawa* 21;58(3):400–10.
19. Chaudhary V, Sharma S. An Overview of Ordered Mesoporous Material SBA-15: Synthesis, Functionalization and Application in Oxidation Reactions. *Journal of Porous Materials.* 2017;24(3):741–9.
20. Ariga K, Vinu A, Yamauchi Y, Ji Q, Hill JP. Nanoarchitectonics for Mesoporous Materials. *Bull Chem Soc Jpn.* 2012;85(1):1–32.
21. Hartono S, Hadisoewignyo L. *Pembuatan dan Pemanfaatan Silika Mesopori.* Surabaya: Universitas Katolik Widya Mandala Surabaya; 2017.
22. Vazquez JAWA, Gonzalez Z, Ferrari B, Castro Y. Synthesis of Mesoporous Silica Nanoparticles by Sol–Gel as Nanocontainer for Future Drug Delivery Applications. *Boletín de la Sociedad Española de Cerámica y Vidrio.* 2017;56(3):139–45.
23. Ijaz A, Yagci MB, Ow-Yang CW, Demirel AL, Mikó A. Formation of Mesoporous Silica Particles with Hierarchical Morphology. *Microporous and Mesoporous Materials.* 2020;303:110240.

24. Ghaedi H, Zhao M. Review on Template Removal Techniques for Synthesis of Mesoporous Silica Materials. Vol. 36, Jawa and Fuels. American Chemical Society; 2022. P. 2424–46.
25. Li X, Yin H, Zhang J, Liu J, Chen G. Effect of Organic Template Removal Approaches on Physiochemical Characterization of Jawa/Al-SBA-15 and Eugenol Hydrodeoxygenation. *J Solid State Chem.* 2020;282:121063.
26. Walcarius A. Mesoporous Materials and Electrochemistry. *Chem Soc Rev.* 2013;42(9):4098–140.
27. Guo Z, Liu XM, Ma L, Li J, Zhang H, Gao YP, et al. Effects of Particle Morphology, Pore Size and Surface Coating of Mesoporous Silica on Naproxen Dissolution Rate Enhancement. *Colloids Surf B Biointerfaces.* 2013;101:228–35.
28. Mittal S, Sonawane A, Khune M. Solubility Enhancement of Glibenclamide Using Mesoporous Silica. *Asian Journal of Pharmaceutical and Clinical Research* [Internet]. 2019;12(8):302–14. Available from: <http://dx.doi.org/10.22159/ajpcr.2019.v12i9.34182>
29. Azizah H. Peningkatan Kelarutan dan Laju Disolusi Kurkumin yang Teradsorpsi dalam Mesopori Silika SBA-15. Universitas Andalas; 2022.
30. Ulfa M, Prasetyoko D. Drug Loading-Release Behaviour of Mesoporous Materials SBA-15 and CMK-3 Using Ibuprofen Molecule as Drug Model. *J Phys Conf Ser.* 2019;1153:012065.
31. Budiman A. Characterization of Drugs Encapsulated into Mesoporous Silica. *Jawa Journal of Applied Pharmaceutics.* 2019;7–11.
32. Hussain AA, Nazir S, Irshad R, Tahir K, Raza M, Khan ZUH, et al. Synthesis of Functionalized Mesoporous Jawa-SBA-16 Decorated with MgO Nanoparticles for Cr (VI) Adsorption and An Effective Catalyst for Hydrodechlorination of Chlorobenzene. *Mater Res Bull.* 2021;133.
33. Thahir R, Wahab AW, Nafie N La, Raya I. Synthesis of High Surface Area Mesoporous Silica SBA-15 by Adjusting Hydrothermal Treatment Time and the Amount of Polyvinyl Alcohol. *Open Chem.* 2019;17(1):963–71.
34. Zhao D, Huo Q, Feng J, Chmelka BF, Stucky GD. Nonionic Triblock and Star Diblock Copolymer and Oligomeric Surfactant Syntheses of Highly Ordered, Hydrothermally Stable, Mesoporous Silica Structures. *J Am Chem Soc.* 1998;120(24):6024–36.

35. Dhaneswara D, Sofyan N. Effect of Different Pluronic P123 Triblock Copolymer Surfactant Concentrations on SBA-15 Pore Formation. *Jawa Journal of Technology*. 2016;7(6):1009.
36. Dhaneswara D, Siti Agustina AAA, Dewantoro Adhy P, Delayori F, Fatriansyah JF. The Effect of Pluronic 123 Surfactant concentration on The N₂ Adsorption Capacity of Mesoporous Silica SBA-15: Dubinin-Astakhov Adsorption Isotherm Analysis. *J Phys Conf Ser*. 2018;1011:012017.
37. Yoga W, Hendriani R. Review: Teknik Peningkatan Kelarutan Obat. *Farmaka*. 2013;14(2):288–98.
38. Mise Y, Ahn SJ, Takagaki A, Kikuchi R, Oyama S. Fabrication and Evaluation of Trimethylmethoxysilane (TMMOS)-Derived Membranes for Gas Separation. *Membranes (Basel)*. 2019;9(10):123.
39. National Center for Biotechnology Information. <https://pubchem.ncbi.nlm.nih.gov/compound/Tetraethyl-orthosilicate>. 2023. PubChem Compound Summary for CID 6517, Tetraethyl orthosilicate.
40. Capela P, Costa S, Souza MS, Carvalho S, Pereira M, Carvalho L, et al. Wear Behavior of A New Composite Formulation, with TEOS Addition, for Abrasive Vitrified Grinding Wheels. *Wear*. 2023;512–513:204524.
41. Bramanti E, Bonaccorsi L, Campanella B, Ferrari C, Malara A, Freni A. Structural Characterization of Electrospun Tetraethylortosilicate (TEOS)/Polyvinylpyrrolidone (PVP) Microfibres. *Mater Chem Phys*. 2022;287:126248.
42. Banerjee S, Omlor A, Wolny JA, Han Y, Lermyte F, Godfrey AE, et al. Generation of Maghemite Nanocrystals from Iron–Sulfur Centres. *Dalton Transactions*. 2019;48(26):9564–9.
43. Fares AR, ElMeshad AN, Kassem MAA. Enhancement of Dissolution and Oral Bioavailability of Lacidipine via Pluronic P123/F127 Mixed Polymeric Micelles: Formulation, Optimization Using Central Composite Design and in vivo Bioavailability Study. *Drug Deliv*. 2018;25(1):132–42.
44. de Castro KC, Coco JC, dos Santos ÉM, Ataíde JA, Martínez RM, do Nascimento MHM, et al. Pluronic® Triblock Copolymer-based Nanoformulations for Cancer Therapy: A 10-year Overview. *Journal of Controlled Release*. 2023;353:802–22.
45. Figueroa-Ochoa EB, Bravo-Anaya LM, Vaca-López R, Landázuri-Gómez G, Rosales-Rivera LC, Diaz-Vidal T, et al. Structural Behavior of Amphiphilic Triblock Copolymer P104/Water System. *Polymers (Basel)*. 2023;15(11):2551.

46. Singla P, Garg S, McClements J, Jamieson O, Peeters M, Mahajan RK. Advances in the Therapeutic Delivery and Applications of Functionalized Pluronic: A Critical Review. *Adv Colloid Interface Sci.* 2022;299:102563.
47. Singh N, Singh AP, Singh AP. Solubility: An Overview. *Jawa Journal of Pharmaceutical Chemistry and Analysis.* 2021;7(4):166–71.
48. Apsari K, Chaerunisa A. Review Jurnal: Upaya Peningkatan Kelarutan Obat. *Farmaka.* 2020;18(2):56–68.
49. Bhalani D V., Nutan B, Kumar A, Singh Chandel AK. Bioavailability Enhancement Techniques for Poorly Aqueous Soluble Drugs and Therapeutics. *Biomedicines.* 2022;10(9):2055.
50. Samineni R, Chimakhurty J, Konidala S. Emerging Role of Biopharmaceutical Classification and Biopharmaceutical Drug Disposition System in Dosage form Development: A Systematic Review. *Turk J Pharm Sci.* 2022;19(6):706–13.
51. Jawa Kesehatan Republik Jawa. *Farmakope Jawa.* Edisi VI. Jawa: Jawa Kesehatan Republik Jawa; 2020.
52. Gao Y, Glennon B, He Y, Donnellan P. Dissolution Kinetics of a BCS Class II Active Pharmaceutical Ingredient: Diffusion-Based Model Validation and Prediction. *ACS Omega.* 2021;6(12):8056–67.
53. Sinila S. *Farmasi Fisik.* Jawa Kesehatan Republik Jawa; 2016. 37–45 p.
54. Oktami E, Lestari F, Aprilia H. Studi Literatur Uji Stabilitas Sediaan Farmasi Bahan Alam. *Prosiding Farmasi.* 2021;
55. Sultana S, Mohammed S. A Review on Stability Studies of Pharmaceutical Products. *Jawa Journal for Pharmaceutical Research Scholars.* 2018;7(1):28–49.
56. Nainggolan A. Pengaruh Metil Oleat Sebagai Template Pada Magnesium Silikat Sekam Padi yang Digunakan Sebagai Adsorben Asam Lemak Bebas Minyak Kelapa Sawit. Universitas Sumatera Utara; 2019.
57. Rismana E, Rosidah I, Bunga O, Yunianto P, Erna E. Pengujian Stabilitas Sediaan Luka Bakar Berbahan Baku Aktif Kitosan/Ekstrak Pegagan (*Centella Asiatica*). *Jurnal Kimia Terapan Jawa.* 2015;17(1):27–37.
58. Sinha P, Datar A, Jeong C, Deng X, Chung JAWA, Lin LC. Surface Area Determination of Porous Materials Using the Brunauer–Emmett–Teller (BET) Method: Limitations and Improvements. *The Journal of Physical Chemistry C.* 2019;123(33):20195–209.

59. Naderi M. Surface Area: Brunauer-Emmett-Teller (BET). In: Progress in Filtration and Separation. Elsevier Ltd; 2015. P. 585–608.
60. Nandiyanto ABD, Oktiani R, Ragadhita R. How to Read and Interpret FTIR Spectroscopy of Organic Material. Indonesian Journal of Science and Technology. 2019;4(1):97.
61. Balan V, Mihai CT, Cojocaru FD, Uritu CM, Dodi G, Botezat D, et al. Vibrational Spectroscopy Fingerprinting in Medicine: from Molecular to Clinical Practice. Materials. 2019;12(18):2884.
62. Sen RK, Karthikeyan K, Prabhakar P, Vishwakarma J, Gupta G, Mishra SN, et al. Fast Tracking of Adulterants and Bacterial Contamination in Food via Raman and Infrared Spectroscopies: Paving the Way for A Healthy and Safe World. Sensors & Diagnostics. 2022;1(4):673–85.
63. Munajad A, Subroto C, Suwarno. Fourier Transform Infrared (FTIR) Spectroscopy Analysis of Transformer Paper in Mineral Oil-Paper Composite Insulation under Accelerated Thermal Aging. Energies (Basel). 2018;11(2):364.
64. Bunaciu AA, Udriștioiu E gabriela, Aboul-Enein HY. X-Ray Diffraction: Instrumentation and Applications. Crit Rev Anal Chem. 2015;45(4):289–99.
65. Setiabudi A, Hardian R, Muzakir A. Karakterisasi Material: Prinsip dan Aplikasinya dalam Penelitian Kimia. Bandung: UPI Press; 2012.
66. Koshy O, Subramanian L, Thomas S. Differential Scanning Calorimetry in Nanoscience and Nanotechnology. In: Thermal and Rheological Measurement Techniques for Nanomaterials Characterization. Elsevier; 2017. P. 109–22.
67. Rohman A, Irnawati, Riswanto F. Analisis Farmasi dengan Spektroskopi UV-Vis dan Kemometrika. Jawa: Gadjah Mada University Press; 2023.
68. Suharti T. Dasar-Dasar Spektrofotometri UV-Vis dan Spektrofotometri Massa Untuk Penentuan Struktur Senyawa Organik. Lampung: CV Anugrah Utama Rahardja; 2017.
69. Nikafshar S, Zabihi O, Ahmadi M, Mirmohseni A, Taseidifar M, Naebe M. The Effects of UV Light on the Chemical and Mechanical Properties of a Transparent Epoxy-Diamine System in the Presence of an Organic UV Absorber. Materials. 2017;10(2):180.
70. Alshehawy AM, Mansour DEA, Ghali M, Lehtonen M, Darwish MMF. Photoluminescence spectroscopy measurements for effective condition assessment of transformer insulating oil. Processes. 2021;9(5).

71. Yu C, Tian B, Fan J, Stucky GD, Zhao D. Salt effect in the synthesis of mesoporous silica templated by non-ionic block copolymers. *Chemical Communications*. 2001;(24):2726–7.
72. Prasetyoko D, Hamid A, Hamzah F, Djoko Hartanto. Sintesis ZSM-5 Mesopori dengan Metode Pemeraman dan Kristalisasi: Pengaruh Waktu Kristalisasi. *Seminar Rekayasa Kimia dan Proses*. 2010;E(05):6–10.
73. Maleki A, Hamidi M. Dissolution enhancement of a model poorly water-soluble drug, atorvastatin, with ordered mesoporous silica: comparison of MSF with SBA-15 as drug carriers. *Expert Opin Drug Deliv*. 2016;13(2):171–81.
74. Adrover ME, Pedernera M, Bonne M, Lebeau B, Bucalá V, Gallo L. Synthesis and characterization of mesoporous SBA-15 and SBA-16 as carriers to improve albendazole dissolution rate. *Saudi Pharmaceutical Journal*. 2020;28(1):15–24.
75. Shen SC, Ng WK, Chia L, Dong YC, Tan RBH. Stabilized amorphous state of ibuprofen by co-spray drying with mesoporous SBA-15 to enhance dissolution properties. *J Pharm Sci*. 2010;99(4):1997–2007.
76. Van Speybroeck M, Barillaro V, Thi T Do, Mellaerts R, Martens J, Van Humbeeck J, et al. Ordered mesoporous silica material SBA-15: A broad-spectrum formulation platform for poorly soluble drugs. *J Pharm Sci*. 2009;98(8):2648–58.
77. European Medicines Agency. *Jawa Conference on Harmonization of Note for Guidance on Validation of Analytical Procedures: Text and Methodology, Step 5 of the ICH Process*. London; 1995. 1–15 p.
78. Harmita H. Petunjuk Pelaksanaan Validasi Metode Dan Cara Perhitungannya. *Majalah Ilmu Kefarmasian*. 2004;1(3):117–35.
79. Supraba W, Juliantoni Y, Ananto AD. The Effect of Stirring Speeds to the Entrapment Efficiency in a Nanoparticles Formulation of Jawa Plumâ€™s seed Ethanol Extract (*Syzygium cumini*). *Acta Chimica Asiana*. 2021;4(1):197–103.
80. Dadej A, Woźniak-Braszak A, Bilski P, Piotrowska-Kempisty H, Józkiwiak M, Geszke-Moritz M, et al. Modification of the Release of Poorly Soluble Sulindac with the APTES-Modified SBA-15 Mesoporous Silica. *Pharmaceutics*. 2021;13(10):1693.
81. Letchmanan K, Shen SC, Ng WK, Tan RBH. Dissolution and physicochemical stability enhancement of artemisinin and mefloquine co-

formulation via nano-confinement with mesoporous SBA-15. *Colloids Surf B Biointerfaces*. 2017;155:560–8.

