

DAFTAR PUSTAKA

- Abdul, S., Chandewar, A. V., and Jaiswal, S. B., 2010. A flexible technology for modified-release drugs: Multiple-unit pellet system (MUPS). **Journal of Controlled Release**, Vol. 147 No. 1, p. 2–16.
- Al-Ibraheemi, Z. A. M., Anuar, M. S., Taip, F. S., Amin, M. C.I., Tahir, S. M., and Mahdi, A. B., 2013. Deformation and mechanical characteristics of compacted binary mixtures of plastic (microcrystalline cellulose), elastic (sodium starch glycolate), and brittle (lactose monohydrate) pharmaceutical excipients. **Particulate Science and Technology**, Vol. 31 No. 6, p. 561–567.
- Augusta, C. T., 2019. Pengaruh penambahan PVP K30 terhadap ko-proses kombinasi mikrokristalin selulosa PH101 dan maltitol sebagai cushioning agent pada tablet multiple unit pellet system (MUPS) metformin HCl. **Skripsi**. Universitas Airlangga.
- Bashaiwoldu, A. B., Podczeck, F., and Newton, J. M., 2011. Compaction of and drug release from coated pellets of different mechanical properties. **Advanced Powder Technology**, Vol. 22 No. 3, p. 340–353.
- Bodmeier, R., 1997. Review Tableting of coated pellets. **European Journal of Pharmaceutics and Biopharmaceutics**, Vol. 43 No. 1, p. 1–8.
- Brown, C. K., Chokshi, H. P., Nickerson, B., Reed, R. A., Rohrs, B. R., and Shah, P. A., 2005. Acceptable analytical practices for dissolution testing of poorly soluble compounds. **Dissolution Technologies**, Vol. 28 No. 12, p. 6–12.
- Carlsson, K., 2007. **Light microscopy**. Stockholm: KTH Applied Physics Dept.

- Çelik, M. and Marshall, K., 1989. Use of a compaction simulator system in tableting Research. **Drug Development and Industrial Pharmacy**, Vol. 15 No. 5, p. 759–800.
- Chen, T., Li, J., Chen, T., Sun, C. C., and Zheng, Y., 2017. Tablets of multi-unit pellet system for controlled drug delivery. **Journal of Controlled Release**, Vol. 262, p. 222–231.
- Chin, W. C., Chan, L. W., and Heng, P. W. S., 2014. A mechanistic investigation on the utilization of lactose as a protective agent for multi-unit pellet systems. **Pharmaceutical Development and Technology**, Vol. 21 No. 2, p. 222–230.
- Coates, J., 2006. Interpretation of Infrared Spectra, A Practical Approach. **Encyclopedia of Analytical Chemistry**, p. 1–23.
- Damayanti, S., 2018. Optimasi kombinasi mikrokristalin selulosa PH101 dan maltitol sebagai cushioning agent pada tablet multiple unit pellet system (MUPS) metformin HCl. **Skripsi**. Universitas Airlangga.
- Dashevsky, A., Kolter, K., and Bodmeier, R., 2004. Compression of pellets coated with various aqueous polymer dispersions. **International Journal of Pharmaceutics**, Vol. 279 No. 1–2, p. 19-26.
- Davis, R., and Mauer, L. J., 2010. Fourier transform infrared (FT-IR) spectroscopy : A rapid tool for detection and analysis of foodborne pathogenic bacteria. **Technology and Education Topics in Applied Microbiology and Microbial Biotechnology**, Vol. 2 No. 1, p. 1582–1594.
- Debunne, A., Vervaet, C., Mangelings, D., and Remon, J. P., 2004. Compaction of enteric-coated pellets: Influence of formulation and process parameters on tablet properties and in vivo evaluation. **European Journal of Pharmaceutical Sciences**, Vol. 22 No. 4, p. 305–314.

- Departemen Kesehatan Republik Indonesia, 1995. **Farmakope Indonesia. Edisi IV.** Jakarta: Departemen Kesehatan Republik Indonesia.
- Departemen Kesehatan Republik Indonesia, 2014. **Farmakope Indonesia. Edisi V.** Jakarta: Departemen Kesehatan Republik Indonesia.
- Faradiba, Hasyim, N., and Zahriati, 2013. Formula granul effervescent ekstrak etanol daun jambu biji (*psidium guajava* linn.). **Majalah Farmasi dan Farmakologi**, Vol. 17 No. 2, p. 47–50.
- Food and Drug Administration, 2015. **Size, shape and other physical attributes of generic tablets and capsules.** United States Department of Health and Human Services Food and Drug Administration.
- Ford, J. L., 2014, Hydrophilic Matrix Tablets for Oral Controlled Release. **American Association of Pharmaceutical Scientists.** P. 17-51.
- Gabaude, C. C. M. D., Guillot, M., Gautier, J., Saudemon, P., and Chulia, D., 1999. Effects of True Density, Compacted Mass, Compression Speed, and Punch Deformation on the Mean Yield Pressure. **Journal of Pharmaceutical Sciences**, Vol. 88 No. 7, p. 725–730.
- Gaidhani, K. A., Harwalkar, M., Bhambere, D., and Nirgude, P. S., 2015. Lyophilization / freeze drying – a review. **World Journal of Pharmaceutical Research**, Vol. 4 No. 8, p. 516–543.
- Gandhi, B., and Baheti, J., 2013. Multiparticulates Drug Delivery Systems : A Review. **International Journal Of Pharmaceutical And Chemical Sciences**, Vol. 2 No. 3, p. 1620–1626.
- Ghanam, D., Hassan, I., and Kleinebudde, P., 2010. Compression behaviour of κ -carrageenan pellets. **International Journal of Pharmaceutics**, Vol. 390 No. 2, p. 117–127.
- Haware, R. V., Tho, I., and Bauer-Brandl, A., 2010. Evaluation of a rapid approximation method for the elastic recovery of tablets. **Powder Technology**, Vol. 202 No. 1–3, p. 71–77.

- Hooper, D., Clarke, F. C., Mitchell, J. C., and Snowden, M. J., 2016. A Modern Approach to the Heckel Equation: The Effect of Compaction Pressure on the Yield Pressure of Ibuprofen and its Sodium Salt. **Journal of Nanomedicine & Nanotechnology**, Vol. 7 No. 3, p. 1–6.
- Hosseini, A., Körber, M. and Bodmeier, R., 2013. Direct compression of cushion-layered ethyl cellulose-coated extended release pellets into rapidly disintegrating tablets without changes in the release profile. **International journal of pharmaceutics**, Vol. 457 No. 2, p. 503–509.
- Jaimini, M., and Rawat, S., 2013. A Review on Immediate Release Drug Delivery System. **Research Journal of Pharmaceutical, Biological and Chemical Sciences**, Vol. 4 No. 2, p. 1721–1730.
- Jethara, S. I., Patel, M. R., and Patel, A. D., 2014. Sustained Release Drug Delivery Systems: A Patent Overview. **Aperito Journal of Drug Designing And Pharmacology**, Vol. 1 No. 2, p. 1–14.
- Jha, M. K., 2012. Modified Release Formulations To Achieve the Quality Target Product Profile (Qtp). **International Journal of Pharmaceutical Sciences and Research**, Vol. 3 No. 8, p. 2376–2386.
- Johansson, B., Nicklasson, F., and Alderborn, G., 1998. Effect of pellet size on degree of deformation and densification during compression and on compactability of microcrystalline cellulose pellets. **International Journal of Pharmaceutics**, Vol. 163 No. 1–2, p. 35–48.
- Kállai, N., Luhn, O., Dredán, J., Kovács, K., Lengyel, M., and Antal, I., 2010. Evaluation of drug release from coated pellets based on isomalt, sugar, and microcrystalline cellulose inert cores. **American Association of Pharmaceutical Scientists PharmSciTech**, Vol. 11 No. 1, p. 383–391.
- Klancnik, G., Medved, J., and Mrvar, P., 2010. Differential thermal analysis (DTA) and differential scanning calorimetry (DSC) as a method of

- material investigation. **Materials and Geoenvironment**, Vol. 57 No. 1, p. 127–142.
- Kleinebudde, P., 1997. The crystallite-gel-model for microcrystalline cellulose in wet-granulation, extrusion, and spheronization. **Pharmaceutical Research**, Vol. 14 No. 6, p. 804–809.
- Li, J. Z., Wu, F., Lin, X., Shen, L., Wang, Y. J., and Feng, Y., 2015. Novel application of hydroxypropyl methylcellulose to improving direct compaction properties of tablet fillers by co-spray drying. **Royal Society of Chemistry Advances**, Vol. 5 No. 85, p. 1–15.
- Li, X., Xu, D. S., Li, M., Liu, L., and Heng, P., 2015. Preparation of co-spray dried cushioning agent containing stearic acid for protecting pellet coatings when compressed. **Drug development and industrial pharmacy**, Vol. 42 No. 5, p. 788–795.
- Lin, X., Chyi, C. W., Ruan, K. F., Feng, Y., and Heng, P. W. S., 2011. Development of potential novel cushioning agents for the compaction of coated multi-particulates by co-processing micronized lactose with polymers. **European Journal of Pharmaceutics and Biopharmaceutics**, Vol. 79 No. 2, p. 406–415.
- Mamatha, B., Srilatha, D., Sivanarayani, C. H., Desu, P. K., and Rao, P. V., 2017. Co-processed excipients: an overview. **World Journal of Pharmaceutical Research**, Vol. 6 No. 15, p. 224–237.
- Marjanović-Balaban¹, Ž., Jelić, D., Antunović, V., and Gojković, V., 2014. Determination Of Water Content In Pharmaceutical Substances. **Journal of Hygienic Engineering and Design**, Vol. 6, p. 137–141.
- Moore, J. W., and Flanner, H. H., 1996. Mathematical comparison of dissolution profiles. **Pharm Tech**, Vol. 20 No. 6, p. 64–74.
- Munn, Z., Peters, M. D.J., Stern, C., Tufanaru, C., McArthur, A., and Aromataris, E., 2018. Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review

- approach. **BMC Medical Research Methodology**, Vol. 18 No. 1, p. 1–7.
- Nurhan, A. D., 2018. Optimasi kombinasi mikrokristalin selulosa PH101 dan sorbitol sebagai cushioning agent pada tablet multiple unit pellet system (MUPS) metformin HCl. **Skripsi**. Universitas Airlangga.
- Nystrom, C., Alderborn, G., Duberg, M., and Karehill, P., 1993. Bonding Surface Area and Bonding Mechanism - Two Important Factors for the. **Drug Development and Industrial Pharmacy**, Vol. 19 No. 17, p. 2143–2196.
- Panda, S. K., Parida, K. R., Roy, H., and Talwar, P., 2013. A Current Technology for Modified Release Drug Delivery System : Multiple-Unit Pellet System (MUPS). **International journal of pharmaceutical Science and Health Care**, Vol. 6 No. 3, p. 51–63.
- Paronen, P., 1986. Heckel Plots As Indicators Of Elastic Properties Of Pharmaceuticals. **Drug Development And Industrial Pharmacy**, Vol. 12 No. 11–13, p. 1903–1912.
- Patel, N. G., Patel, S. A., and Joshi, A. B., 2017. Multiple Unit Pellet System (Mups Technology) For Development Of Modified Release Fast Disintegrating Tablets: A Review. **Journal of Pharmaceutical and Scientific Innovation**, Vol. 3 No. 6, p. 50–56.
- Pham, M. T., Rajić, A., Greig, J. D., Sargeant, J M., Papadopoulos, A., and Mcewen, S. A., 2014. A scoping review of scoping reviews: Advancing the approach and enhancing the consistency. **Research Synthesis Methods**, Vol. 5 No. 4, p. 371–385.
- Prahesthi, R. A., 2019. Pengaruh konsentrasi eritritol terhadap ko-proses kombinasi mikrokristalin selulosa PH101 dan eritritol sebagai cushioning agent pada tablet multiple unit pellet system (MUPS) metformin hcl. **Skripsi**. Universitas Airlangga.

- Reddy, S., Das, P., Das, H., and Ghosh, A., 2011. MUPS (Multiple Unit Pellet System) Tablets – A Brief Review. **Journal of pharmaceutical and biomedical sciences**, Vol. 12 No. 12, p. 1–5.
- Rojas, J., Buckner, I., and Kumar, V., 2012. Co-processed excipients with enhanced direct compression functionality for improved tableting performance. **Drug Development and Industrial Pharmacy**, Vol. 38 No. 10, p. 1159–1170.
- Rowe, R. C., Sheskey, P. J., and Quinn, M. E., 2009. **Handbook of Pharmaceutical Excipients Sixth Edition**. London: Pharmaceutical Press
- Ruegger, C. E., and Çelik, M., 2011. Advanced compaction research equipment: Compaction simulators. In: M. Çelik, eds. **Pharmaceutical Powder Compaction Technology Second Edition**. London: Informa Healthcare.
- Shah, V. P., Tsong, Y., Sathe, P., and Liu, J. P., 1998. In vitro dissolution profile comparison- Statistics and analysis of the similarity factor, f_2 . **Pharmaceutical Research**, p. 889–896.
- Shan, L., Tao, E. X., Meng, Q. H., Hou, W. X., Liu, K., Shang, H. C., Tang, J. B., and Zhang, W. F., 2016. Formulation, optimization, and pharmacodynamic evaluation of chitosan/phospholipid/ β -cyclodextrin microspheres. **Drug Design, Development and Therapy**, Vol. 10 No. 1, p. 417–429.
- Shargel, L., Wu-Pong, S., and Yu, A. B. C., 2012. **Biofarmasetika & Farmakokinetika Terapan Edisi Kelima**. Diterjemahkan dari bahasa Inggris oleh Fasich dan B. Suprapti. Surabaya: Airlangga University Press.
- Sinko, P. J., 2011. **Martin Farmasi Fisika dan Ilmu Farmasetika edisi 5**. Diterjemahkan dari bahasa Inggris oleh Tim Alih Bahasa Sekolah Farmasi ITB. Jakarta: Buku Kedokteran EGC

- Siow, C. R. S., Heng, P. W. S., and Chan, L. W., 2017. Bulk Freeze-Drying Milling: a Versatile Method of Developing Highly Porous Cushioning Excipients for Compacted Multiple-Unit Pellet Systems (MUPS). **American Association of Pharmaceutical Scientists PharmSciTech**, Vol. 19 No. 2, p. 845–857.
- Siow, C. R. S., Heng, P. W. S., and Chan, L. W., 2020. A study on the impact of HPMC viscosity grade and proportion on the functional properties of co-freeze-dried mannitol-HPMC cushioning excipients for compacted MUPS. **European Journal of Pharmaceutics and Biopharmaceutics**, Vol. 151, p. 98–107.
- Storey, R. A., and Ymen, I., 2011. **Solid State Characterization of Pharmaceuticals**. West Sussex: John Wiley & Sons Ltd.
- Sun, C. C., 2011. Decoding powder tableability: Roles of particle adhesion and plasticity. **Journal of Adhesion Science and Technology**, Vol. 25 No. 4–5, p. 483–499.
- Tunón, Å., Gråsjö, J., and Alderborn, G., 2003. Effect of intragranular porosity on compression behaviour of and drug release from reservoir pellets. **European Journal of Pharmaceutical Sciences**, Vol. 19 No. 5, p. 333–344.
- United States Pharmacopeia Convention, 2013. **United States Pharmacopeia 36**. United States Pharmacopeia Convention.
- Vyas, S., Pradhan, S. D., Pavaskar, N. R., and Lachke, A., 2004. Differential thermal and thermogravimetric analyses of bound water content in cellulosic substrates and its significance during cellulose hydrolysis by alkaline active fungal cellulases. **Applied Biochemistry and Biotechnology**, Vol. 118 No. 1–3, p. 177–188.
- Wagner, K. G., Krumme, M., and Schmidt, P. C., 1999. Investigation of the pellet-distribution in single tablets via image analysis. **European**

- Journal of Pharmaceutics and Biopharmaceutics**, Vol. 47 No. 1, p. 79–85.
- Wairkar, S., Gaud, R., and Raghavan, A., 2016 Multi-particulate Systems: Cutting-edge Technology for Controlled Drug Delivery. **Recent Patents on Drug Delivery & Formulation**, Vol. 10 No. 3, p. 184–191.
- Werner, D., 2006. Sugar spheres: A versatile excipient for oral pellet medications with modified release kinetics. **Pharmaceutical Technology Europe**, Vol. 18 No. 4, p. 35–41.
- Xu, M., Heng, P. W. S., and Liew, C. V., 2016. Formulation and process strategies to minimize coat damage for compaction of coated pellets in a rotary tablet press: A mechanistic view. **International journal of pharmaceutics**, Vol. 499 No. 1–2, p. 29–37.
- Yao, T., Yamada, M., Yamahara, H., and Yoshida, M., 1998. Tableting of Coated Particles. II. Influence of Particle Size of Pharmaceutical Additives on Protection of Coating Membrane from Mechanical Damage during Compression Process. **Chemical Pharmaceutical Bulletin**, Vol. 46 No. 5, p. 826–830.
- Zhang, J., Wu, C. Y., Pan, X., and Wu, C., 2017. On identification of critical material attributes for compression behaviour of pharmaceutical diluent powders. **Materials**, Vol. 10 No. 7, p. 1–16.