BAB 5
KESIMPULAN

5.1. Kesimpulan

Konsentrasi PVP K-30 berpengaruh secara signifikan terhadap peningkatan nilai *Carr's index*, peningkatan nilai *Hausner ratio*, peningkatan kekerasan tablet, peningkatan waktu hancur tablet, peningkatan waktu pembasahan, dan penurunan nilai absorpsi air. Konsentrasi *crospovidone* berpengaruh secara signifikan terhadap peningkatan nilai *Carr's index*, peningkatan nilai *Hausner ratio*, penurunan kekerasan tablet, penurunan waktu hancur, penurunan waktu pembasahan, dan peningkatan nilai rasio absorpsi air. Konsentrasi manitol berpengaruh secara signifikan terhadap peningkatan nilai *Carr's index*, peningkatan nilai *Hausner ratio*, penurunan kekerasan, peningkatan waktu hancur, peningkatan waktu pembasahan tablet, dan penurunan rasio absorpsi air. Interaksi konsentrasi PVP K-30 dan konsentrasi *crospovidone* berpengaruh secara signifikan terhadap penurunan nilai *Carr's index*, penurunan nilai *Hausner ratio*, penurunan waktu hancur tablet dan penurunan waktu pemmbasahan tablet. Interkasi konsentrasi *Crospovidone* dan konsentrasi manitol berpengaruh secara signifikan terhadap penurunan waktu hancur, penurunan waktu pembasahan, dan peningkatan rasio absospsi air. Interaksi konsentrasi PVP K-30 dan konsentrasi manitol berpengaruh signifikan terhadap peningkatan waktu hancur tablet dan waktu pembasahan tablet. Interaksi konsentrasi PVP K-30, konsentrasi *crospovidone*, dan konsentrasi manitol berpengaruh secara signifikan terhadap peningkatan kerapuhan, penurunan waktu pembasahan, dan penurunan rasio absorpsi.

Formula optimum bahan ko-proses yang diperoleh dengan program optimasi *Design Expert* yaitu formula dengan konsentrasi PVP K-30 6,47%,

konsentrasi *crospovidone* 8%, dan konsentrasi manitol 6,03% dengan prediksi untuk respon *Carr's index* 17,77%, *Hausner ratio* 1,21, kerapuhan 0,69%, kekerasan 2,42 Kp, waktu hancur 95,52 detik, waktu pembasahan 369,81 detik, dan rasio absorpsi air 36,27. Respon yang menunjukkan perbedaan yang bermakna dengan hasil teoritis yaitu, waktu pembasahan tablet, tetapi masih memenuhi persyaratan.

Sifat fisik tablet ODT domperidone yang dikempa dengan eksipien ko-proses yang optimum memenuhi syarat sebagai tablet ODT.

5.2. Alur Penelitian Selanjutnya

Dapat dilakukan penelitian lebih lanjut menggunakan bahan aktif selain domperidone untuk membuktikan kesahihan dari hasil optimasi yang didapat.

DAFTAR PUSTAKA

Ansel, H. C., 2005, *Pengantar Bentuk Sediaan Farmasi Edisi Keempat*. Universitas Indonesia Press. Jakarta, 95-101.

Banker, G.S. and N.R. Anderson, 1986, Tablet, in: *The Theory and Practice of Industrial Pharmacy: Tablet*, L. Lachman, H.A. Lieberman, and J.L. Kanig (Eds.), 3rd ed., Lea and Febiger, Philadelphia, 259, 295, 299, 316 – 329.

Banakar, U.V., 1992, *Pharmaceutical Disolution Testing*, Marcel Dekker Inc., New York,1925.

Bhowmik, D., C.B, Krishnakanth, Pankaj, R.M. Chandira, 2009, Fast Dissolving Tablet: An Overview, *Journal of Chemical and Pharmaceutical*, vol.1, ed. 1, 163-170.

BMJ Group and the Royal Pharmaceutical Society, 2011, *BNF*, London: BMJ Group and the Royal Pharmaceutical Society of Great Britain, Inc., 253-255.

Camarco, W., D. Ray and A. Druffner, 2006, *Selecting Superdisintegrants For Orally Disintegrating Tablet Formulations*, Pharm Tech Supplement, 28-37.

Chaudhari, PD., AA.Phatak, U. Desai, 2012, A Review: Coprocessed Excipients-An Alternative to Novel Chemical Entities, *Internasional Journal of Pharmaceutical and Chemical Sciences*, vol.1, ed. 3, 1480 –1493.

Chougule, A.S., A. Dikpati, T. Trimbake, 2012, Formulation Development Techniques of Co-processed Excipients, *Journal of Advanced Pharmaceutical*, 2, 231 –245.

Chowdary, K.P.R., and K. Ramya, 2013, Recent Research on Co-Processed Excipients for Direct Compression-A Review, *Internasional Journal of Comprehesive Pharmacy*, vol.2, ed. 1, 1-4.

Davies, P., 2004, Oral Solid Dosage Forms, in Gibson (ed): *Pharmaceutical Preformulation and Formulation*, CRC Press, USA, 274-277.

Departemen Kesehatan RI, 1979, *Farmakope Indonesia*, ed. III, Jakarta: Departemen Kesehatan RI, 4, 166, 449-450, 488-489.

Departemen Kesehatan RI, 1995, *Farmakope Indonesia*, ed. IV, Jakarta: Departemen Kesehatan RI, 4, 166, 449-450, 488-489, 515, 683, 783-784, 999-1000.

Dibbern, H.W., R.M. Muller, and E. Wirtbitzki, 2002, *UV and IR Spectra*, Editio Cantor Verlag, 579.

European Directorate for the Quality Medicine, 2005, *European Pharmacopeia*, 5th ed, English: European Directorate for the Quality Medicine, 1473-1475.

Food and Drug Administration, 2006, *USP29-NF24*, General Information Chapter : Powder Flow, US Pharmacopeial Convention, Rockville, MD, USA, 616-618, 701.

Food and Drug Administration, 2007, *US Pharmacopeia XXX*, US Pharmacopeial Convention Inc., Rockville, 2086-2089.

Forner, D.E., T.W. Rosanske, R.E. Gordon, G.S. Banker, and N.R. Anderson, 1981, Granulation and Tablet Characteristic, In: *Pharmaceutical Dosage Form*, L. Lachman, H.A. Lieberman, and J.B. Schwartz (Eds.), vol. 2, 2nd ed., Marcel Dekker Inc., New York, 248-338.

Gohel, M. C., P.D. Jogani, 2005, A review of co-processed directly compressible excipients, *J Pharm Pharmaceutical Sci*, vol.8, no. 1, 76-93.

Guyton and Hall, 1997. *Buku Ajar Fisiologi Kedokteran*, Ed. 9, Jakarta: EGC, 597-612.

Gordon, R.E., Rosanske, T.W., Fonner,D.E., Anderson, N.R., and Banker, G.S., 1990, Massa Tabletation Technology and Tablet Characterization, in Lieberman, H.A., Lachman, L.,Schwartz, J.B.(ed): *Pharmaceutical Dosage Form : Tablet*. Volume2, 2nd edition., Marchel Dekker, inc., New York, 382-386.

Green, J.M., 1996, A Practical Guide to Analytical Method Validition, *Analytical Chemistry*, 68, 305-309.

Hadisoewignyo, L., A. Fudholi, 2013, *Sediaan Solida*, Pustaka Pelajar, Yogyakarta, 235-237.

Hsu, A.f. and C-H Han, 2005, Oral Disintegrating Dosage Form, *US Patent Application Publication Number 20050147670A1*, 1-3.

Jadou, A., and V. Preat, 1997, Electically Enhanced Transdermal Delivery of Domperidone, *International Journal of Pharmaceutics*, 230-232.

Jeong, S.H., Yuuki, T., Yourong, F., Kinam, P.,2008, Material Properties For Making Fast Dissolving Tablets by a Compression Method, *Journal of Materials Chemistry*, Ed.18, 3527- 3535.

Jonwal, N., P.Mane, S. Mokati, A.Meena, 2010, Preparation and In Vitro Evaluation of Mouth Dissolving Tablets of Domperidone, *International Journal of Pharmacy and Pharmaceutical Sciences*, vol.2, ed. 3, 170-172.

Khan, K.A., 1975, The Concept of Dissolution Efficiency, *J. Pharm*, 27(1), 48-49.

Kumar, G., Dokala, Ch. Pallavi, 2013, Direct Compression - An Overview, *International Journal of Research in Pharmaceutical and Biomedical Sciences*, vol.4, ed. 1, 155-158.

Lachman, L., Herbert, A. L., and Joseph, L. K., 1994, *Teori dan Praktek Farmasi Industri II*, Indonesia University Press, Jakarta, 97-102.

Langenbucher, F., 1972, Linearization of Dissolution Rate Curve by Weibull Distribution, *Journal of Pharmaceutical Sciences*, 24, 979-981.

Mahajan, U., B. Parashar, N. Sharma, Y. Jadhav, S. Musasvad, V. Patil, 2012, Fast Dissolving Tablet- An Overview of Formulation Technology, *Indo Global Journal of Pharmaceutical Sciences*, vol.2, ed. 2, 157-164.

Martin, A., J. Swarbrick, dan A. Cammarata, 1993, *Farmasi Fisik: Dasar-dasar Kimia Fisika dalam Ilmu Farmasetik*, vol. 2, ed. 3, terjemahan Yoshita, Universitas Indonesia, Jakarta, 1135.

Mathpati, A. G., A.S. Alkunte, A.S. Birajdar, 2012, Formulation And Evaluation of Fast Dissolving Tablets of Losartan Potassium by using Co-processed Superdisintegrants, *International Journal of Universal Pharmacy and Life Sciences*, vol.2, ed. 4, 236-242.

Miller R.H., 1966, *Husa's Pharmaceutical Dispensing*, E.W. Martin, mack publishing company, easton Pensylvania, 104-106.

Mycek, M.J., R.A. Harvey, and P.C. Champe, 2001, *Farmakologi Ulasan Bergambar*, ed 2, terjemahan Azwar Agoes, Widya Medika, Jakarta, 139, 414-416.

Nagar, P., K.Singh, I. Chauhan, M. Verma, M. Yasir, A. Khan, R. Sharma, and N. Gupta, 2011, Orally disintegrating tablets : formulation, preparation techniques and evaluation, *Journal of Applied Pharmaceutical Science*, vol.1, ed. 4, 35-45.

Nagendrakumar, D., S.A. Raju, S.B. Shirsand, and M.S.Para, 2010, Design of Fast Dissolving Granisetron HCL Tablets Using Novel Co-Processed Superdisintegrants, *International Journal of Pharmaceutical Sciences Review and Research*, vol.1, ed. 1, 58-60.

Parrott, E.L., 1971, *Pharmaceutical Technology Fundamental Pharmaceutics*, 3rd ed., Burgess Publishing Company, Minneapolis, 17-19, 82, 160-162.

Patel, P., D. Telange, N. Sharma, 2011, Comparison of Different Granulation Techniques for Lactose Monohydrate, *International Journal of Pharmacy and Pharmaceutical Sciences*, vol.3, ed. 3, 222-224.

Patil, J., Chandrasekhar, K., Vishwajith, V., and Gopal, V., 2011, Formulation, Design and Evaluation Of Orally Disintegrating Tablets of Loratadine Using Direct Compression Process, *International Journal of Pharma and Bio Science*, Vol. 2, Ed., 2, 390.

Rowe, R., P.J. Shekey, M.E. Quinn, 2009, *Handbook of Pharmaceutical Excipients*, 6th ed, The Pharmaceutical Press, London, 581, 592-593.

Shargel, L. and A.B.C. Yu, 1999, *Biofarmasetika dan Farmakokinetika Terapan*, terjemahan Fasich dan S. Syamsial, Universitas Airlangga, Surabaya, 6 – 18, 101, 167 – 199.

Shervington, L.A. and A. Shervington, 1998, Guaifenesin, In: *Analytical Profiles of Drug Substances and Exipients*, H.G. Brittain (Ed.), vol. 25, Academic Press, London, 152.

Sheth, S.K., S.J. Patel and J.B.Shukla, 2010, Formulation and Evaluation of Taste Masked Oral Disintegrating Tablet of Lornoxicam, *International Journal of Pharma and Bio Sciences*, vol.1, ed. 2, 4-5.

Siregar, Ch. J. P.,1992, *Proses Validasi Manufaktur Sediaan Tablet*, Institut Teknologi Bandung, Bandung, 29-31.

Siregar, Ch. J. P., 2010, Dasar-Dasar Praktis, *Teknologi Farmasi Sediaan Tablet*, penerbit buku-buku kedokteran EGC, Jakarta, 3-5, 159,163, 239-247.

Sweetman, S.C., 2009, *Martindle The Complete Drug Reference*, 37th, The Pharmaceutical Press, London, 1726-1727.

The Department of Health, Social Service and Public Safety, 2009, *British Pharmacopoeia*, London: The Department of Health, Social Service and Public Safety, 253-255.

Velmurugan, S. and S.Vinushitha, 2010, Oral Disintegrating Tablets: An Overview, *International Journal of Pharmacy and Pharmaceutical Sciences*, vol.1, ed. 2, 1-9.

Voigt, R., 1995, *Buku Pelajaran Teknologi Farmasi*, Terjemahan S. Noerono dan M. S. Reksohardiprojo, Gadjah Mada University Press, Yogyakarta, 163-210.

Wagner, J.G., 1971, *Biopharmaceutics and Relevant Pharmacokinetics*, 1 st edition, Drug Intelligence Publication, Illionis, 64-110.

Zainuddin, M., 2000, 'Validasi Metode Analisis Kuantitatif secara Spektrofotometris Ultra Ungu-Sinar Tampak (Uv-Vis)', *Pelatihan Teknik Tenaga Pengujian Regional Balai POM*, Balai POM, Surabaya, 18-24.