

## BAB 5

### KESIMPULAN DAN ALUR PENELITIAN SELANJUTNYA

#### 5.1 Kesimpulan

1. Berdasarkan hasil uji ANAVA dari *Design Expert*, konsentrasi HPMC K4M, konsentrasi amilum kulit pisang agung, dan interaksinya sebagai matriks tablet tidak berpengaruh signifikan terhadap kekerasan, kerapuhan dan konstanta laju disolusi teofilin.
2. Rancangan formula optimum tablet lepas lambat teofilin yang menggunakan konsentrasi HPMC K4M sebanyak 8,58% dan konsentrasi amilum kulit pisang agung sebanyak 7,65%. Formula optimum akan memberikan prediksi respon sebagai berikut: kekerasan sebesar 10,07 Kp; kerapuhan sebesar 0,27%; dan konstanta laju disolusi sebesar 0,0762% per menit.

#### 5.2 Alur Penelitian Selanjutnya

Dapat dilakukan penelitian lebih lanjut mengenai tablet lepas lambat teofilin dengan mencari dan membuktikan formula optimum terpilih, kemudian dibandingkan dengan hasil yang secara teoritis.

## DAFTAR PUSTAKA

- Adeniyi, I. A., Waheed B. Y., dan Chinonye P. E., 2017, *A Note on Pharmacokinetics Modelling of Theophylline Concentration Data on Patients with Respiratory Disease*. *Journal of Biostatic*, **10** (1): 27-45.
- Allen, L. V., Nicholas G. P., Howard C. Ansel, 2010, Bentuk Sediaan Farmasetis dan Sistem Penghantaran Obat, Ed. 9. ECG, Jakarta.
- Anonim, 2009, *Martindale The Complete Drug Reference*, Ed. 36. Pharmaceutical Press, London.
- Anonim, 2011, *British National Formulary* Ed. 61, British Medical Association and royal Pharmaceutical Society of Great Britain, London.
- Anonim, 2012, *United Stated Pharmacope35-National Formulary* 30. Twinbrook Parkway, Rockville.
- Anonim, 2013, *American Hospital Formulary Service*, American Society of Health System Pharmacists, Bethesda.
- Anonim, 2014, Farmakope Indonesia Ed. 5. Departemen Kesehatan RI, Jakarta.
- Banakar, U. V., William A. Hanson, 1992, *Pharmaceutical Dissolution Testing*. Marcel Dekker, New York.
- Banker, G. S. dan Anderson N. R., 1994, Tablet, dalam Teori dan Praktek Farmasi Industri, Edisi III, Jilid II, diterjemahkan dari Bahasa Inggris oleh Suyatmi, S., UI-Press, Jakarta.
- Biswas, S., Kamrun N., Kamal H., Jamilur R. B., Abdullah A., Sohel Rana., 2014, *Formulation design and in-vitro release profile evaluation of Theophylline hydrochloride sustained release tablet using different polymer at different concentration*. *Journal of Chemical and Pharmaceutical Research*, **6**(8): 12-23.
- Bukarim, K. A, 2016, Optimasi Formula Tablet *Floating Ibuprofen Menggunakan HPMC K4M-Amilum Kulit Pisang Agung dan Natrium Bikarbonat sebagai Floating Agent*, Skripsi, Sarjana Farmasi, Universitas Katolik Widya Mandala, Surabaya.
- Cartesen, J. T., Ping, 1972, *Theory of Pharmaceutical Systems*. Academic Press, London.

- Chandrikarani, D., 2016, Optimasi Formula Tablet Floating Glikazid Menggunakan HPMC K4M-Amilum Kulit Pisang Agung dan Natrium Bikarbonat sebagai Floating Agent, *Skripsi*, Sarjana Farmasi, Universitas Katolik Widya Mandala, Surabaya.
- Fiese, E.F. and A.T. Hagen, 1986. ‘*Preformulation*’, in Lachman, L., H.A. Lieberman, dan J.L. Kanig (Eds.). *The Theory and Practice of Industrial Pharmacy*, 3rd Edition. Lea dan Febiger, Philadepia.
- Goodman and Gilman, 2010, Manual Farmakologi dan Terapi / editor Laurence L. Burton; ahli bahasa, Elih Yulinah Iskandar dkk; editor edisi bahasa Indonesia, July Manurung. EGC, Jakarta.
- Hadioewignyo, L., Ahmad F., 2016, Sediaan Solida Edisi Revisi. Pustaka Pelajar, Yogyakarta.
- Hadioewignyo, L., Foe, K., Tjandrawinata, R.R., 2017, *Isolation and characterization of Agung banana peel starch from East Java Indonesia. International Food Research Journal*, **24(3)**: 1324-1330.
- Lacy, C. F., Lora L. A., Morton P. G., Leonard L. L., 2014, Drug Information Handbook Ed 22. Lexi-comp, United State.
- Masareddy, R.S. , P. V. Kendalkar dan A. M. Belekar, 2012, *Effect of Polymers as Matrix System in Formulation of Sustained Release Theophylline Matrix Tablet. International Journal of Pharmacy and Pharmaceutical Science*, **4(4)**: 409-414.
- Neal, M. J., 2006, *At a Glace Farmakologi Medis* Ed. 5; ahli bahasa, Juwita Surapsai; editor edisi bahasa Indonesia, Amalia Safitri. Erlangga, Jakarta.
- Nofalina, Y., 2013, Pengaruh Penambahan Tepung Terigu Terhadap Daya Terima, Kadar Karbohidrat dan Kadar Serat Kue Prol Bonggol Pisang (*Musa Paradisiaca*)’, *Skripsi*, Sarjana Kesehatan Masyarakat, Universitas Jember, Jember.
- Ochoa, L., Manuela I., Rosa M., Hernández., Alicia R., Gascón., José L. P., 2005, *Preparation of Sustained Release Hydrophilic Matrices by Melt Granulation in a High-shear Mixer. International Journal of Pharmacy and Pharmaceutical Science*, **8(2)**: 132-140.
- Parrott, E.L., 1971, *Pharmaceutical Technology Fundamental Pharmaceutics*, Ed. 3, Burgess Publishing Company, Mineapolis.

- Pawar, M. D.; Vedprakash S. Chopane; Muntazim M. Khan; Mallinath S. Birajdar; V. P. Choudhari; B.S. Kuchekar; 2011, *Formulation Development and Evaluation of pH and Time Dependent Drug Delivery using Gantrez® S-97 and PVP K-30*. *Journal of Pharmacy Research*, **4(6)**: 1603-1605.
- Pedersen, S., Helen R., Louis P. B., Rebecca D., 2018, *Pocket Guide for Asthma Management and Prevention*. Global Initiative for Asthma: [www.ginasthma.org](http://www.ginasthma.org).
- Priyanka, A., Dyade G., Hirave R., Bendgude R., Gaikwad S., 2018, *Stability Indicating UV Spektrophotometric Method for Simultaneous Estimation of Montelukast and Theophylline in Combined Pharmaceutical Faormulation*. *Research Journal of Pharmacy*, **9(8)**: 100-106.
- Rawlins, E.A., 1977, *Bentley's Textbook of Pharmaceutics* Ed. 8. Macmillan Publishing Co. Inc, New York.
- Rowe, R.C., Sheskey, P.J., and Quinn, M.E., (eds.), 2009, *Handbook of Pharmaceutical Excipient*, Ed. 6., Pharmaceutical Press, London.
- Sandler, N., Katharina R., Jyrki H., Jouko Y., 2010, *Effect of Moisture on Powder Flow Properties of Theophylline*, *Journal Pharmaceutics*, **10(2)**: 275-290.
- Shargel, Wu, Yu, 2012, *Applied Biopharmaceutics and Pharmacokinetics*, Ed. 5. McGraw – Hill, New York.
- Shargel, Wu, Yu, 2016, *Applied Biopharmaceutics and Pharmacokinetics*, Ed. 7. McGraw – Hill, New York.
- Sharkey, M. F., Carolyn N. Andres., Susan W. Snow., Antoine M., Theodore K., Victor W., Thomas G. A., 1975, *Association Official Analytical Chemists*. Benjamin Franklin Stat, Washington.
- Sinko, P. J., 2011, Farmasi Fisika dan Ilmu Farmasetika; ahli bahasa, Joshita Djajasasta; editor edisi bahasa Indonesia, July Manurung dkk. Ed. 5. EGC, Jakarta.
- Soewandhi, S. N., 2010, Peran Sains Kristal Bahan Aktif Farmasi dalam Pengembangan Teknologi Farmasi Solida. ITB, Bandung.
- Somani, A. A., Kirstin T., Songmao Z., Mirjam N. T., Katrin C., Michaela M., Katrin S., Ibraim I., Stefan W., Stephan S., 2015, *Evaluation of change in oral drug absorption in preterm and term neonates for*

- Biopharmaceutics Classification System (BCS) class I and II compounds. British Journal of Clinical Pharmacology, 81(1): 137-147.*
- Tan, T. H. dan Kirana, 2008, Obat-obat Penting. Elex Media Komputindo, Jakarta.
- W, Morisia H, 2016, Optimasi Formula Tablet *Floating* Kaptopril Menggunakan HPMC K4M-Amilum Kulit Pisang Agung dan Natrium Bikarbonat sebagai *Floating* Agent, Skripsi, Sarjana Farmasi, Universitas Katolik Widya Mandala, Surabaya.
- Wadke, D. A., Abu T. M. Serajuddin., Harold J., 1976, ‘*Preformulation*’, in *Pharmaceutical Dosage Forms*, Ed. 2, volume 1 . Lea dan Febiger, Philadepia.
- Watson, D. G., 2009, Analisis Farmasi Ed. 2. ECG, Jakarta.
- Zerbe, H. G., Markus K., 2003, *Smatrix System: Design Characteristics and Release Properties of a Novel Erosion-Controlled Oral Delivery System. In Modified-Released Drug Delivery Technology*. Marcel Dekker, New York.