

BAB 5

KESIMPULAN DAN SARAN

5.1. Kesimpulan

Berdasarkan hasil *Design Expert* terhadap mutu fisik granul pembawa didapatkan formula optimum yaitu formula dengan kombinasi crospovidon 3,11 gram dan manitol sampai 154,25 gram.

Persen pelepasan obat dilakukan terhadap campuran interaktif dengan dan tanpa granul pembawa, sediaan kapsul merk dagang dan metode granulasi basah pada menit ke 2 berturut-turut $96,19 \pm 2,11$; $80,19 \pm 0,37$; $38,63 \pm 3,80$ dan $90,71 \pm 3,40$. Homogenitas kadar piroksikam campuran interaktif dengan granul pembawa lebih homogen ($KV < 2\%$) dibandingkan dengan campuran interaktif tanpa granul pembawa ($KV > 2\%$). Campuran interaktif dengan granul pembawa yang menggunakan manitol sebagai pembawa larut air dan crospovidon sebagai superdisintegran dapat meningkatkan laju disolusi dan homogenitas kadar piroksikam.

5.2. Saran

Penelitian campuran interaktif dengan granul pembawa dapat dilanjutkan menjadi sediaan tablet atau kapsul untuk melihat pada bentuk sediaan mana memberikan pelepasan yang lebih baik.

DAFTAR PUSTAKA

Anonim, 1995, **Farmakope Indonesia edisi IV**, Dirjen POM Departemen Kesehatan RI, Jakarta, 683.

Anonim, 2003, **Guidelines on Method Validation to be Performed in Support of Analytical Methods for Agrochemical Formulations**, 11.

Anonim, 2006, **USP29-NF24**, General Information Chapter '<1774> Powder Flow', US Pharmacopeial Convention, Rockville, MD, USA.

Anonim, 2009, **Suplemen I Farmakope Indonesia**, Departemen Kesehatan RI, Jakarta, 1478.

Banakar, U.V., 1992, **Pharmaceutical Dissolution Testing, Drug and the Pharmaceutical Science**, Vol. 49, Marcel Dekker, Inc., 21-22, 133-180.

Bhise, S., G. Chaulang, P. Patel, B. Patel, A. Bhosale, dan S. Hardikar, 2009, Superdisintegrants as Solubilizing Agent, **Research J. Pharm. and Tech.**, 2(2), Pune, 387

Bhowmik, D., B. Chiranjib, Krishnakanth, Pankaj, R.Margret Chandira, 2009, Fast Dissolving Tablet: An Overview, **Journal of Chemical and Pharmaceutical Research**, 1(1): 163-177.

Bolton, S. dan C. Bon, 2004, **Pharmaceutical Statistics**, Practical and Clinical Applications, 4th Edition, Marcel Dekker, Inc., New York, 265-281.

Carter, J. C., 2006, The Role of Disintegrants in Solid Oral Dosage Manufacturing, <http://www.carterpharmaceuticalconsulting.com/articles/The-role-of-disintergrants.html>, Carter Pharmaceutical Consulting, Inc., diakses tanggal 29 Juli 2013.

Dash, S., P. N. Murthy, L. Nath, dan P. Chowdhury, 2010, Kinetic Modeling on Drug Release from Controlled Drug Delivery Systems, **Acta Poloniae Pharmaceutica – Drug Research**, Vol. 67, No. 3, 217-233.

Dhage, M. A., G. S. Chhabra, dan S. K. Banerjee, 2011, Development and Evaluation of UV-Spectrophotometric Method for Piroxicam in Bulk and Pharmaceutical Formulation, **J. Chem. Pharm. Res.**, 3(2), 765.

Foltmann, H. and A. Quadir, 2008, Polyvinylpyrrolidone (PVP) – One of the Most Widely Used Excipients in Pharmaceuticals: An Overview, **Drug Delivery Technology**, Vol. 8, No. 6.

Ganiswara, S.G., 2006, *Farmakologi dan Terapi*, Edisi 5, Bagian Farmakologi Fakultas Kedokteran-Universitas Indonesia, Jakarta, 217-219.

Gordon, R. E., T. W. Rosanske, D. E. Fonner, N. R. Anderson, dan G. S. Banker, 1990, Granulation Technology and Tablet Characterization, dalam : **Pharmaceutical Dosage Forms : Tablet**, Lieberman, H. A., L. Lachman, dan J. B. Schwartz (Eds.), Volume 2, 2nd Edition, Marcel Dekker, Inc., New York, 259-330.

Jafvert, C.T., 1996, **Surfactants / Cosolvents**, Ground-Water Remediation Technologies Analysis Center, E Series: TE-96-02, 4.

Kaur, T., B. Gill, S. Kumar, dan G. D. Gupta, 2011, Mouth Dissolving Tablets : A Novel Approach to Drug Delivery, **International Journal of Current Pharmaceutical Research**, Vol. 3, Issue 1, 1-7.

Kerns, E. H. dan L. Di, 2008, Solubility, dalam : **Drug Like Properties: Concept, Structure, Design and Methods, from ADME to Toxicity Optimization**, Elsevier, 78.

Khinchi, M. P., M. K. Gupta, A. Bhandari, D. Agarwal and N. Sharma, 2011, Studies on the Disintegrant Properties of Seed Powder, Husk Powder and Mucilage of Plantago Ovata by Formulation of Orally Disintegrating Tablet, **International Journal of Pharmaceutical Sciences and Research**, 2(1), Rajashtan, 146.

Kumar, A., S. K. Sahoo, K. Padhee, P. P. S. Kochar, A. Satapathy dan N. Pathak, 2011, Review On Solubility Enhancement Techniques for Hydrophobic Drugs, **Pharmacie Globale Int. J. Comprehensive Pharmacy**.

Lachman, L., H. A. Lieberman, dan J. L. Kanig, 1986, **The Theory and Practice of Industrial Pharmacy**, 3th edition, Lea & Febiger, Philadelphia, 184.

Mangal, M., S. Thakral, M. Goswami, P. Ghai, 2012, Superdisintegrants: An Updated Review, **Int. J. of Pharmacy and Pharmaceutical Science Research**, 2(2) 26-35.

Martindale The Extra Pharmacopeia 36, 2009. The Pharmaceutical Press, London, hal 117.

Mohamed, M. B., M. K. Talari, M. Tripathy, A. B. A. Majeed, Pharmaceutical Application of Crospovidone : A Review, **Int. J. of Drug Formulation and Research**, Vol.3, No.1, 13-28.

Mohanachandran, P. S., P. G. Sindhumol, dan T. S Kiran, 2010, Enhancement of Solubility and Dissolution Rate : An Overview, **Pharmacie Globale, Int. J. Comprehensive Pharmacy**, 4 (11).

Rowe, R.C.,P.J. Sheskey, and Owen, S. C., 2006, **Handbook of Pharmaceutical Excipients**, Fifth Edition, London : The Pharmaceutical Press, 214-215, 449-451, 687-689.

Rowe, R.C.,P.J. Sheskey, and M.E. Quinn, 2009, **Handbook of Pharmaceutical Excipients**, Sixth Edition, London : The Pharmaceutical Press, 201-202.

Saharan, V.A., V. Kukkar, M. Kataria, V. Kharb and P. Choudhury, 2008, Ordered Mixing: Mechanism, Process and Applications in Pharmaceutical Formulations, **Asian J. Pharm. Sci.** 3, 240–259.

Saharan, V.A., V. Kukkar, M. Kataria, M. Gera, dan P. K. Choudhury, 2009, Dissolution Enhancement of Drugs. Part I: Technologies and Effect of Carriers, **International Journal of Health Research**, 121.

Saharan V. A. dan P. Choudhury, 2011, Dissolution Rate Enhancement of Gliclazide by Ordered Mixing, **Acta Pharm.** 61, 323.

Saharan V. A. dan P. Choudhury, 2012, Dissolution Rate Enhancement of Piroxicam by Ordered Mixing, **Pak. J. Pharm. Sci.**, Vol.25, No.3, 521-533.

Shawkat H., M. M. Westwood, A. Mortimer, Mannitol : A Review of Its Clinical Uses, Revalidation for Anaesthetists, 1-4.

Siregar, C. J. P., 1992, Proses Validasi Manufaktur Sediaan Tablet, dalam : **Proceedings Seminar Validasi di Industri Farmasi Sebagai Pendukung Pelaksanaan CPOB**, Siregar, C., G. Agoes, dan B. Logawa (penilai), Jurusan Farmasi, FMIPA, ITB, 38 - 39.

Siswandono & Soekardjo, B., 2000. **Kimia Medisinal**. Edisi 2, Airlangga University Press, Surabaya, 306.

Voigt, R., 1984, **Buku Pelajaran Teknologi Farmasi**, (S. Noerono dan Reksohadiprojo, penerjemah), Edisi 5, Gadjah Mada University Press, Yogyakarta, 160.

Wells, J. I., 1988, **Pharmaceutical Preformulation The Physicochemical Properties of Drug Substances**, Ellis Horwood Limited, Great Britain.