Sari, Wahyu D.N., 2019, Pembuatan dan Karakterisasi Kapsul Kappa Karaginan-Maltodekstrin dengan Penambahan *Plasticizer* Sorbitol sebagai Material *Drug Delivery System*, skripsi ini di bawah bimbingan Siti Wafiroh, S.Si., M.Si., dan Dr. Pratiwi Putjiastuti, M.Si., Departemen Kimia, Fakultas Sains dan Teknologi, Universitas Airlangga.

ABSTRAK

Kappa karaginan dan maltodekstrin sebagai kandidat bahan baku *drug delivery system* untuk inovasi pembuatan cangkang kapsul. Penelitian ini bertujuan untuk membuat dan mengkarakterisasi kapsul kappa karaginan-maltodekstrin dengan *plasticizer* sorbitol sebagai material *drug delivery system*. Pembuatan kapsul dilakukan dengan mencampurkan komposisi karaginan-maltodekstrin (4:2) gram, dan *plasticizer* sorbitol dengan variasi volume 0,5 ml, 1,0 ml, 1,5 ml, dan 2,0 ml. Karakterisasi kapsul meliputi uji FTIR, uji derajat *swelling*, uji sifat mekanik, uji disintegrasi, uji disolusi dan uji SEM. Kapsul dengan sifat mekanik paling baik adalah volume sorbitol 0,5 ml yang memiliki nilai derajat *swelling* sebesar 279,31%, nilai *stress* 51,2 MPa, *strain* 11,7%, dan *modulus young* 239,1 MPa. Hasil uji disolusi dan disintegrasi dalam waktu 60 menit menunjukkan obat *diclofenac sodium* terdistribusi 81,63% dalam larutan *buffer* pH 6,8. Dengan demikian, berdasarkan hasil karakterisasi kapsul dari karaginan-maltodekstrin dan *plasticizer* sorbitol dapat digunakan sebagai material *drug delivery system*.

Kata kunci : *kappa karaginan, maltodekstrin, plasticizer sorbitol, drug delivery system*

Sari, Wahyu D.N., 2019, Preparation and Characterization of Capsule from Kappa Carrageenan-Maltodextrin with Addition of Sorbitol Plasticizer as Drug Delivery System Material, this study is under guidance of Siti Wafiroh, S.Si., M.Si., and Dr. Pratiwi Putjiastuti, M.Si., Department of Chemistry, Faculty of Science and Technology, Airlangga University.

ABSTRACT

Kappa carageenan and maltodextrin have been developed as candidates for new raw materials of drug delivery system for innovation to make a capsules shell. The purpose of this research are to make and characterize of capsules made from kappa carrageenan-maltodextrin with sorbitol plasticizer as drug delivery system material. The capsules is made by mixing the composition of the carrageenan-maltodextrin (4:2) gram and the sorbitol plasticizer with variations volume of 0.5 ml, 1.0 ml, 1.5 ml, and 2.0 ml. Characterization of capsules include FTIR test, test of swelling degree, mechanical properties test, disintegration test, dissolution test, and SEM test. Capsules with the best mechanical is sorbitol volume of 0.5 ml which have swelling degree of 279.31%, stress value 51.2 MPa, elongation 11.7%, and modulus young 239.1 MPa. The results of dissolution and disintegration test with the time 60 minutes indicate the diclofenac sodium drug distribution 81.63% in buffer solution of pH 6.8. Based on this research, the carrageenan-maltodextrin capsule and sorbitol plasticizer can be used as drug delivery system material.

Keywords : *kappa carrageenan, maltodextrin, sorbitol plasticizer, drug delivery system*