

INTISARI

KURNIAWATI, E., 2013, OPTIMASI *CO-PROCESSED EXCIPIENT* CAMPURAN MANITOL DAN AVICEL PH 101 SEBAGAI BAHAN PENGISI-PENGIKAT TABLET KEMPA LANGSUNG SECARA *SIMPLEX LATTICE DESIGN*, SKRIPSI, FAKULTAS FARMASI, UNIVERSITAS SETIA BUDI SURAKARTA.

Metode kempa langsung merupakan metode pembuatan tablet yang efisien dari segi biaya maupun waktu, namun memerlukan bahan pengisi-pengikat dengan sifat alir dan kompaktilitas yang baik. Bahan pengisi-pengikat diperoleh dari *co-processing* manitol dan Avicel PH 101 secara *spray drying* untuk mendapatkan *co-processed excipient* dengan sifat alir dan kompaktilitas yang baik. Formula optimum *co-processed excipient* diperoleh dengan pendekatan *simplex lattice design*.

Co-processed excipient dibuat dari campuran manitol dan Avicel PH 101 secara *spray drying* dengan konsentrasi 20%. Optimasi secara *simplex lattice design* menggunakan lima formula dengan perbandingan 100 % manitol, 75 % manitol : 25 % Avicel PH 101, 50 % manitol : 50 % Avicel PH 101, 25 % manitol : 75 % Avicel PH 101, dan 100 % Avicel PH 101. Evaluasi karakteristik fisik *co-processed excipient* meliputi kandungan lembab, viskositas, kecepatan alir dan sudut diam, kompaktilitas, berat jenis nyata dan berat jenis mampat, indeks Carr, dan titik leleh. Evaluasi mutu fisik tablet meliputi keseragaman ukuran, keseragaman bobot, kekerasan, waktu hancur, dan uji disolusi tablet.

Penetapan formula optimum berdasarkan parameter karakteristik fisik *co-processed excipient* dan mutu fisik tablet menggunakan Design Expert versi 8.0.7.1[®]. Formula optimum *co-processed excipient* adalah pada komposisi 38,93 % manitol dan 61,07 % Avicel PH 101.

Kata kunci : *co-processed excipient, spray drying, manitol, Avicel PH 101, simplex lattice design*

ABSTRACT

KURNIAWATI, E., 2013, OPTIMIZATION OF CO-PROCESSED EXCIPIENTS OF MANITOL AND AVICEL PH 101 MIXTURE AS A FILLER-BINDER MATERIAL OF DIRECT COMPRESSION TABLET BY SIMPLEX LATTICE DESIGN, THESIS, FACULTY OF PHARMACY, SETIA BUDI UNIVERSITY, SURAKARTA.

Direct compression is the tablet manufacture method that has cost and time efficient, but require a filler-binder properties that has good flowability and compactibility. The filler-binder material was obtained from co-processing mannitol and Avicel PH 101 by spray drying to get the co-processed excipient with good flowability and good compactibility. Optimum formula of co-processed excipient was obtained by simplex lattice design approach.

The co-processed excipient was made from a mixture of mannitol and Avicel PH 101 by spray drying with a concentration of 20 %. Optimization was made by simplex lattice design in five formulas with the composition of 100 % mannitol, 75 % mannitol : 25 % Avicel PH 101, 50 % mannitol : 50 % Avicel PH 101, 25 % mannitol : 75 % Avicel PH 101, and 100 % Avicel PH 101. Evaluation of the physical characteristics of the co-processed excipient included moisture content, viscosity, flow rate and angle of repose, compactibility, bulk and tapped density, Carr's index, and melting point. Evaluation of tablet properties included uniformity of size and weight, hardness, friability, disintegration time and dissolution testing of tablets.

Determination of the optimum formula was based on the physical characteristics of the co-processed excipient and the tablet properties parameters, used Design Expert version 8.0.7.1[®]. Optimum formula of co-processed excipient was at the composition of 38,93 % mannitol and 61,07 % Avicel PH 101.

Keywords : co-processed excipient, spray drying, manitol, Avicel PH 101, simplex lattice design