Film-forming polymer-granulated excipients as the matrix materials for the controlled release dosage forms.

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Abstract

Lactose and dibasic calcium phosphate (DCP) were granulated with various concentrations of film-forming polymers by a stepwise spraying method to prepare a directly compressible matrix excipient. The film-forming polymeric latex of Eudragit RS-30D, Eudragit RL-30D, and Surelease (ethylcellulose) were used in this study as the source of the granulating materials. Better flowability and compressibility were observed for all the granulated particles than the polymer-free granules. Most tablets prepared from the polymer-granulated particles exhibited satisfactory friability of less than 1% except for those prepared from lactose particles granulated with low concentrations of ethylcellulose and from plain lactose granules. Change in tensile strength and tablet thickness were in good agreement with the plasticity of the granulating polymer. Polymer-granulated lactose and DCP provided for controlled release of captopril from matrix tablets. This investigation suggests that conventional excipients can be modified by a simple granulating procedure to provide better physical properties for being used as a matrix material.