Abstract

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Oral delivery of protein to the colon based on polysaccharide pectin has been developed. Bovine serum albumin (BSA) was used as a model drug. Calcium pectinate gel beads (CPG) were prepared by dropping BSA-loaded pectin solution into cacium chloride solution. The droplets formed gelled spheres by ionotropic gelation. Subsequence drying produced matrix beads in which BSA was embedded. In-vitro testings were conducted to study the release of BSA from CPG beads under conditions mimicking mouth to colon transit. Various factors affecting the bead preparation and the release of BSA from CPG beads such as type of pectin, calcium concentration, cross-linking time, BSA loading, hardening agent and drying condition were studied. By changing the type of pectin, it is possible to protect BSA during conditions mouth to colon transit and was susceptible to enzymatic attack. Additionally, the release of BSA from CPG beads was affected by calcium concentration, cross-linking time, BSA loading, hardening agent and drying condition. Since the release of BSA, as a model protein drug, could be controlled by the regulation of the preparation conditions of CPG beads, the CPG beads may be used for a potential oral delivery of protein drugs.