Drug Development and Industrial Pharmacy
Volume ٣٤, Issue ٥, May ٢٠٠٨, Pages ٤٩٢-٤٩٨

Preparation, characterization, and mucoadhesive properties of chitosan-coated microspheres encapsulated with cyclosporine A

Malaekeh-Nikouei, B.[ad], Sajadi Tabassi, S.A.[b], Jaafari, M.R.[c]
[a] Department of Pharmaceutics, School of Pharmacy and Pharmaceutical Research Centre, **Mashhad University** of **Medical Sciences**, **Mashhad**, Iran
[b] Department of Pharmaceutics, School of Pharmacy and Pharmacological Research Center of Medicinal Plants, **Mashhad University** of **Medical Sciences**, **Mashhad**, Iran
[c] Department of Pharmaceutics, School of Pharmacy and Biotechnology Research Center, **Mashhad University** of **Medical Sciences**, **Mashhad**, Iran
[d] Pharmaceutical Research Center, Buali Square, **Mashhad**, Iran

View references (٢٧)

Abstract
The aim of this study was to prepare and characterize chitosan-coated microspheres containing cyclosporine A (CyA). Microspheres encapsulated with CyA were prepared by solvent evaporation-emulsification methods. Microspheres were immersed in chitosan solution (٠,٥٪ w/w) to be coated. Morphology, mean size, and encapsulation efficiency of chitosan-coated microspheres were evaluated. To assess the mucoadhesive properties of this drug delivery system, the percent of mucin adsorption to the surface of coated microspheres was determined. Microspheres were spherical in shape. Encapsulation efficiency of different microsphere formulations varied from ٧٨٪ to ٩٢٪. According to the mucin adsorption results, this particulate system showed suitable mucoadhesive properties. It can be concluded that surface modification of microspheres by chitosan coating would increase the prospects of their usefulness as oral drug delivery systems for CyA. Copyright © Informa Healthcare USA, Inc.

Author keywords
Chitosan coating; Cyclosporine A; Microsphere; Oral delivery

Indexed Keywords
EMTREE drug terms: chitosan; cyclosporin A; microsphere; polyglactin

EMTREE medical terms: adsorption; article; cell proliferation; controlled study; drug coating; drug delivery system; drug synthesis; emulsion; encapsulation; evaporation; human; human cell

MeSH: Adhesiveness; Cell Proliferation; Chemistry, Pharmaceutical; Chitosan; Chromatography, High Pressure Liquid; Cyclosporine; Drug Carriers; Drug Compounding; Humans; Immunosuppressive Agents; Lactic Acid; Microscopy, Electron, Scanning; Microspheres; Mucins; Particle Size; Polyglycolic Acid; Solubility; Surface Properties; T-Lymphocytes
Medline is the source for the MeSH terms of this document.

Chemicals and CAS Registry Numbers: chitosan, ٩٠١٢-٧٦-٤; cyclosporin A, ٥٩٨٦٥-١٣-٣, ٦٣٧٩٨-٧٣-٢; polyglactin, ٢٦٧٨٠-٥٠-٧, ٣٤٣٤٦-٠١-٥;Chitosan, ٩٠١٢-٧٦-٤; Cyclosporine, ٥٩٨٦٥-١٣-٣; Drug Carriers; Immunosuppressive Agents; Lactic Acid, ٥٠-٢١-٥; Mucins; Polyglycolic Acid, ٢٦٠٠٩-٠٣-٠; polylactic acid-polyglycolic acid copolymer
Manufacturers:Drug manufacturer: Fluka, Germany;Sigma, United States;LC.

ISSN: ٠٣٦٣٩٠٤٥ **CODEN:** DDIPD **Source Type:** Journal **Original language:** English
DOI: ١٠,١٠٨٠/٠٣٦٣٩٠٤٠٧٠١٧٤٤٠٠٤ **PubMed ID:** ١٨٤٧٣٢٣١ **Document Type:** Article