

external link (opens in a new window)

Search Sources Analytics Alerts My list Settings Live Chat Help Tutorials

Quick Search

Search

Back to results | < Previous 66 of 125 Next >

[Link to Full Text](#) | [Download](#) [Export](#) [Print](#) [E-mail](#) [Create bibliography](#) [Add to My List](#)

Journal of Drug Delivery Science and Technology

Volume 16, Issue 5, September 2006, Pages 345-350

The effect of complexation on characteristics and drug release from PLGA microspheres loaded by cyclosporine-cyclodextrin complex

Malaekheh-Nikouei, B.^{ab}, Tabassi, S.A.S.^c, Jaafari, M.R.^d, Davies, N.M.^e^a Department of Pharmaceutics, Mashhad University of Medical Sciences, Mashhad, Iran^b School of Pharmacy and Pharmaceutical Research Center, Mashhad University of Medical Sciences, Mashhad, Iran^c School of Pharmacy and Pharmacological Research Center of Medicinal Plants, Mashhad University of Medical Sciences, Mashhad, Iran^d School of Pharmacy and Biotechnology Research Center, Mashhad University of Medical Sciences, Mashhad, Iran^e School of Pharmacy, University of Queensland, Brisbane, QLD, Australia

Abstract

[View references \(31\)](#)

The purpose of this study was to evaluate the effect of cyclosporine (CyA)-cyclodextrin (CD) complex incorporated within PLGA microspheres on microsphere characteristics, with particular emphasis on drug release kinetics. For this purpose, microspheres encapsulated with CyA and those loaded by CyA-CD complex were prepared by solvent evaporation and multiple emulsification solvent evaporation methods, respectively. Morphology, size, encapsulation efficiency and drug release pattern from microspheres were evaluated. Also, physicochemical properties of drug inside microspheres were characterized by differential scanning calorimetry (DSC) and infrared spectroscopy (IR) studies. Scanning electron microscopy (SEM) studies showed that microspheres encapsulated with CyA had islands on the microsphere surface but the islands were not seen on the surface of microspheres loaded by complex. Size range varied from 1 to 25 μm for CyA encapsulated microspheres and 1 to 50 μm for complex loaded microspheres. The release of CyA was biphasic with an initial more rapid release phase followed by a slower phase but drug release was twice as fast for complex loaded microspheres. IR studies did not indicate any chemical interaction between the components of microspheres and DSC thermograms revealed that CyA was present either in its amorphous state in microspheres or the presence of CyA as an inclusion complex within microspheres loaded by complex. In conclusion, using CyA as an inclusion complex with CD within microspheres can affect microsphere characteristics and drug release and it is possible to modify microsphere properties like drug release by incorporating CDs as complexing agents.

Reaxys Database Information

Author keywords

Complexation; Cyclodextrin; CyclosporineA; Microsphere; PLGA; Release

Indexed Keywords

EMTREE drug terms: cyclodextrin; cyclosporin A; microsphere; polylactide

EMTREE medical terms: article; differential scanning calorimetry; drug release; in vitro study; infrared spectrometry; scanning electron microscopy; thermography

Chemicals and CAS Registry Numbers: cyclodextrin, 12619-70-4; cyclosporin A, 59865-13-3, 63798-73-2; polylactide, 26680-10-4

ISSN: 17732247 CODEN: JDDSA Source Type: Journal Original language: English

Document Type: Article

References (31)

[View in table layout](#)
[Page](#) [Export](#) [Print](#) [E-mail](#) [Create bibliography](#)

Cited by since 1996

This article has been cited **1 time** in Scopus:

Otero-Espinar, F.J., Torres-Labandeira, J.J., Alvarez-Lorenzo, C.
Cyclodextrins in drug delivery systems
 (2010) *Journal of Drug Delivery Science and Technology*

[View details of this citation](#)

Inform me when this document is cited in Scopus:

[Set alert](#) | [Set feed](#)

Related documents

Showing the 2 most relevant related documents by all shared references:

Malaekheh-Nikouei, B., Tabassi, S.A.S., Jaafari, M.R.
The effect of different grades of PLGA on characteristics of microspheres encapsulated with Cyclosporine A
 (2006) *Current Drug Delivery*

Malaekheh-Nikouei, B., Nassirli, H., Davies, N.
Enhancement of cyclosporine aqueous solubility using - And hydroxypropyl -cyclodextrin mixtures
 (2007) *Journal of Inclusion Phenomena and Macrocyclic Chemistry*

[View all related documents](#) based on all shared references or [select the shared references](#) to use

Find more related documents in Scopus based on:

[Authors](#) | [Keywords](#)

More By These Authors

The authors of this article have a total of **140 records** in Scopus: (Showing 5 most recent)

Alavizadeh, S.H., Badiee, A., Khamesipour, A., Jalali, S.A., Firouzmand, H., Abbasi, A., Jaafari, M.R.
The role of liposome-protamine-DNA nanoparticles containing CpG oligodeoxynucleotides in the course of infection induced by Leishmania major in BALB/c mice
 (2012) *Experimental Parasitology*

Malaekheh-Nikouei, B., Ghaeni, F.A., Motamedshariaty, V.S., Mohajeri, S.A.

[Add apps](#) | [Help](#)