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Authors: Xiaoping Yu, Yuzhi Mu, Mengxue Xu, Guixue Xia, Juan Wang, Ya Liu, Xiguang Chen



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Preparation and characterization of mucosal adhesive and two-step drug releasing cetirizine-chitosan nanoparticle

Xiaoping Yu ^a, Yuzhi Mu ^a, Mengxue Xu ^a, Guixue Xia ^a, Juan Wang ^b,
Ya Liu ^a and Xiguang Chen ^{a*}

^a College of Marine Life Science, Ocean University of China, Yushan Road, Qingdao 266003, Shandong Province, China

^b College of Life Science, Linyi University, Shandong, 276005, P.R. China

* Corresponding Xiguang Chen, E-mail: xgchen@ouc.edu.cn

College of Marine Life Science

Ocean University of China

5# Yushan Road, Qingdao, 266003, China

Tel/Fax.: 86-0532-82032586

Highlights

- Amphiphilic cetirizine-chitosan nanoparticles (CTZ-CSs-NPs) were prepared.
- Cetirizine dihydrochloride (CedH) was loaded in CTZ-CSs-NPs.
- CedH:CTZ-CS-NPs displayed two-step release profiles in the presence of lysozyme.
- CedH:CTZ-CS-NPs showed well biocompatibility and mucoadhesive properties.

Abstract

To develop a functional nanosized mucosal drug delivery system, a series of amphiphilic cetirizine-chitosan polymer (CTZ-CSs) were constructed. CTZ-CSs could self-assemble into nanoparticles (NPs) which gradually evolved from irregular aggregates to spherical particles with an increasing substitution degree (DS) in CTZ group. The average particle size of CTZ-CSs-NPs with nano ZS90 Zetasizer varied from 153.92nm to 184.48nm and their zeta potential varied between +19.14 mV and +22.93 mV. Biocompatibility assay exhibited CTZ-

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