سیویلیکا - ناشر تخصصی مقالات کنفرانس ها و ژورنال ها
گواهی ثبت مقاله در سیویلیکا
CIVILICA.com

عنوان مقاله:

Preparation and characterization of bear bile-loaded pH sensitive in-situ gel eye drops for ocular drug delivery

محل انتشار:

مجله علوم پایه پزشکی ایران, دوره 23, شماره 7 (سال: 1399)

تعداد صفحات اصل مقاله: 8

نویسندگان:

Xiaomin Ni - *School of Pharmaceutical Sciences, Sun Yat-sen University, University Town, Guangzhou ۵۱۰۰۰۶, PR China*

Qin Guo - *School of Pharmaceutical Sciences, Sun Yat-sen University, University Town, Guangzhou ۵۱۰۰۰۶, PR China*

Yiqing Zou - *School of Pharmaceutical Sciences, Sun Yat-sen University, University Town, Guangzhou ۵۱۰۰۰۶, PR China*

Yang Xuan - *School of Pharmaceutical Sciences, Sun Yat-sen University, University Town, Guangzhou ۵۱۰۰۰۶, PR China*

خلاصه مقاله:

Objective(s): In this study, a stable bear bile-loaded pH sensitive in-situ eye drop gel was prepared for sustain delivery and enhanced therapeutic application. Materials and Methods: Bear bile-loaded in-situ ocular gels with different Carbopol/Hydroxypropyl methylcellulose (HPMC) ratios were prepared and their stability was tested in PBS at a series of pH at 40 °C. The morphology was observed by SEM examination and rheology was observed by Rheometer equipped with a 60-mm cone-plate at apex angle of 1°. Gel erosion and release kinetics of Tauroursodeoxycholic acid (TUDCA) was determined by HPLC. While, the in vivo dwelling time was obtained after administering the fluorescent-loaded gel in ocular disease-free New Zealand rabbits. Finally, biocompatibility and toxicity was observed by irritation test and H&E staining of eye-ball tissues, respectively. Results: The bear bile-loaded in-situ ocular gel showed excellent stability at different pH (pH 5.0, 5.5, 6.0, 6.5, 7.0 and 8.0) up to 5 days, and bear bile extract significantly attenuated the gelling ability of the in-situ gel. The viscosity of in-situ gels formulation was decreased with increase in shear rate (0.01 to 100 s-1), and morphological examination of freeze-dried preparation showed three-dimensional reticular structure at physiological pH. The in-situ ocular gel exhibited promising sustained drug release up to 160 min in vitro, and showed prolonged retention time up to 3-folds in vivo. Finally, the biocompability data confirmed that the formulation did not induce any toxic effects and was completely compatible with eye tissues.Conclusion: pH sensitive in-situ ocular gel provides new research opportunities to efficiently treat eye diseases.

کلمات کلیدی:

Bear bile, In-situ ocular gel, pH sensitive, Rheology, Sustain-releas

لینک ثابت مقاله در پایگاه سیویلیکا:

https://civilica.com/doc/1038513