عنوان مقاله:

Preparation and in-vitro evaluation of fluorometholone cubosomes for ocular delivery

محل انتشار:

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خلاصه مقاله:

Objective(s): In this study, ocular drug delivery systems with a dispersed lipid liquid crystal (cubosomes) containing fluorometholone were used for sustained release and increased permeability to the eye.Materials and Methods: To obtain the best Cubosomes, ۶ formulations (F) were prepared. To prepare the F۱, glycerol monooleate (GMO) and water containing fluorometholone were vortexed. After one week, when the liquid crystal gel formed, ۰.۵ g of the liquid crystal gel was added to ۹.۵ g of a ۱% (w/w%) aqueous solution of Polaxamer F-۱۲۷, and the mixture were homogenized and sonicated.Results: The data showed that increasing the weight of gel from ۰.۵ g to ۱.۰ g (F۲) did not result in a significant increase in drug loading, indicating that increasing the GMO concentration did not affect drug loading. The addition of cyclodextrin to the formulation (F۳), along with an increase in cyclodextrin concentration from a molar ratio of ۵:۱ to ۱۰:۱ (F۴), did not create a significant alternation in drug loading. Furthermore, the addition of phosphatidyl choline (PC) to the GMO (F۵) did not cause a significant change in drug loading. Finally, in formulation F۶ (in which GMO, Polaxamer, and the drug was dissolved in ethanol, the ethanol was removed, and the mixture was dispersed in water) the resulting cubosomes showed a higher drug loading efficiency compared to other formulations. Accelerated stability studies of optimal formulation (F۶) according to the ICH Q۱A(R۲) guideline demonstrated no significant changes in physical characterization and in-vitro release evaluation, indicating complete formulation stability.Conclusion: Cubosomes can be used as suitable carriers for fluorometholone delivery to eye.

کلمات کلیدی:

Fluorometholone, Liquid crystal, Ocular, Stability