

عنوان مقاله:

Preparation and evaluation of electrospun nanofibers containing pectin and time-dependent polymers aimed for colonic drug delivery of celecoxib

محل انتشار:

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خلاصه مقاله:

Objective(s):The aim of this study was to prepare electrospun nanofibers of celecoxib using combination of time-dependent polymers with pectin to achieve a colon-specific drug delivery system for celecoxib. **Materials and Methods:**Formulations were produced based on two multilevel 22 full factorial designs. The independent variables were the ratio of drug:time-dependent polymer (X1) and the amount of pectin in formulations (X2). Electrospinning process was used for preparation of nanofibers. The spinning solutions were loaded in 5 mL syringes. The feeding rate was fixed by a syringe pump at 2.0 mL/h and a high voltage supply at range 10-18 kV was applied for electrospinning. Electrospun nanofibers were collected and evaluated by scanning electron microscopy and drug release in the acid and buffer with pH 6.8 with and without pectinase. **Results:**Electrospun nanofibers of celecoxib with appropriate morphological properties were produced via electrospinning process. Drug release from electrospun nanofibers was very low in the acidic media; while, drug release in the simulated colonic media was the highest from formulations containing pectin. **Conclusion:** Formulation F2 (containing drug:ERS with the ratio of 1:2 and 10% pectin) exhibited acceptable morphological characteristics and protection of drug in the upper GI tract and could be a good candidate as a colonic drug delivery system for celecoxib.

کلمات کلیدی:

Celecoxib, Colonic delivery, Electrospinning, Nanofiber, Pectin

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