عنوان مقاله:

Preparation and physicochemical characterization of N-succinyl chitosan-coated liposomes for oral delivery of grape seed extract and evaluation of its effect on pulmonary fibrosis induced by bleomycin in rats

محل انتشار:

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خلاصه مقاله:

Objective(s): This study aimed to develop an oral succinyl chitosan-coated liposomal formulation containing grape seed extract and assess its therapeutic efficacy in rats with bleomycin-induced pulmonary fibrosis. Materials and Methods: N-succinyl chitosan was synthesized, and the liposomal formulations were prepared and characterized regarding phenolic content assay and morphology. Size, zeta potential, in vitro drug release, and stability. Pulmonary fibrosis was induced by intratracheal bleomycin injection, and hydroxyproline measurements, lung weight, animal body weight, as well as histopathological studies were performedResults: Succinyl chitosan increases the physical stability of the formulation, especially in acidic conditions. Drug release studies revealed that ۶۶.۲۷% of the loaded drug was released from CF۲ in an acidic medium in ۲ hr, but ۹۲.۳۱% of the drug was released in ۸ hr in a pH=۷ medium. An in vivo study demonstrated that rats exposed to bleomycin significantly lost weight, while those treated with CF۲ (۴۰۰ mg/kg) partially regained weight. Bleomycin treatment increased the mean lung weight and the amount of hydroxyproline in the lungs; these values were significantly decreased in the group treated with ۴۰۰ mg/kg CF۲ (P<۰.۰۵). Histopathological examination confirmed that treatment with ۴۰۰ mg/kg CF۲ improved lung fibrosis. Conclusion: In rats, oral administration of N-succinyl chitosan-coated liposomes containing grape seed extract at the ۴۰۰ mg/kg dose ameliorates bleomycin-induced pulmonary fibrosis.

کلمات کلیدی:
Bleomycin, grape seed extract, Liposomes, N-succinyl chitosan, Pulmonary Fibrosis