

عنوان مقاله:

Preparing and Characterizing Chitosan Nanoparticles Containing Hemiscorpius lepturus Scorpion Venom as an Antigen Delivery System

محل انتشار:

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خلاصه مقاله:

In recent years, chitosan nanoparticles have been studied widely for protein delivery. In this study, Hemiscorpius lepturus (HL) venom was encapsulated in chitosan nanoparticles. The aim of the present work was to carry out a systematic study for preparing biocompatible and biodegradable nanoparticles for loading HL scorpion venom and to evaluate their potential as an antigen delivery system. In this study, HL venom loaded chitosan nanoparticles fabricated by ionic gelation of chitosan and tripolyphosphate and the factors which may be influenced in the preparation of nanoparticles were analyzed. Also, their physicochemical properties and in vitro release behavior were studied. The optimum encapsulation efficiency and capacity were observed when the chitosan concentration and HL venom were 2mg/ml and 500µg/ml, respectively. The HL venom loaded nanoparticles were in the size range of 130-160nm (polydispersity index values of 0.423) and exhibited the positive zeta potential. Transmission electron microscope imaging showed spherical and smooth surface of nanoparticles. The profiles of the release exhibited a burst releases about 50% in the first 4 hr and then slowed down at a constant rate. The obtained results suggested that the chitosan nanoparticles prepared in this work had the potential for antigen delivery.

کلمات کلیدی:

chitosan, Nanoparticle, Venom, Ionic gelation

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