عنوان مقاله:

Response Surface Methodology in the Optimization of Chitosan Nanoparticles

محل انتشار:

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خلاصه مقاله:

The objectives were to investigate the effects of formulation variables on the encapsulation efficiency of drug and to optimize the formulation of chitosan nanoparticles loaded with ellagic acid for encapsulation efficiency using response surface methodology. Chitosan nanoparticles were prepared by ionic gelation method using sodium tripolyphosphate as a gelating agent. A central composite design was used to evaluate and optimize the effect of preparation variables, drug concentration (A), chitosan concentration (B), TPP concentration (C) on encapsulation efficiency (R). The suitability of the proposed quadratic model was proved with high correlation coefficient (R2 = 0.9993), indicating the success of RSM in optimization of operating parameters in the prediction of encapsulation efficiency. The adequate precision is 83.136, which indicates an adequate signal, hence this model could be used to navigate the response surface design space. The optimized experimental variables for encapsulation efficiency determined in this study were found as ellagic acid (0.3 mg/ml), chitosan (3 mg/ml) and TPP (0.05 mg/ml) concentrations. The TPP concentration .was the most influential factor that affected on drug encapsulation efficiency

کلمات کلیدی:

Chitosan, nanoparticles, response surface methodology