Formulation Of Ciprofloxacin Hydrochloride Loaded Biodegradable Nanoparticles: Optimization Of Technique And Process Variables

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Abstract

Poly lactic-co-glycolic acid (PLGA 502 H) nanoparticles incorporating ciprofloxacin HCI (CP) were prepared by double emulsion solvent diffusion technique.
Methods: The influence of the application of probe sonication besides the high pressure homogenization in the preparation of the secondary emulsion and its application during the solidification step were studied. Their effect of the addition of polyvinyl alcohol (PVA) during the preparation of the primary emulsion was studied. Moreover, the effect of the addition of 0.1 M sodium chloride and/or adjusting the external and extracting phases of pH 7.4 were investigated. The selected formula was examined using IR, X-ray, DSC and SEM and in vitro drug release.
Results: These formulations showed an appropriate particle size ranges between 135.7 ï 187.85 nm, a mean zeta potential ranging from 0.839 to 6.81 mV and a mean of EE% which ranged from 35% to 69%
Conclusion: The presented data revealed the superiority of using probe sonication besides high pressure homogenization during the formation of secondary emulsion. Moreover, the results indicated that the tested factors had a pronounced significant effect on the EE%.

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