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(57) Abstract :
The present invention relates to a method for preparing controlled-release chitosan-sodium alginate microbeads containing Levofloxacin Hydrochloride. The method involves preparing a sodium alginate solution, incorporating Levofloxacin Hydrochloride, and adding it dropwise into a chitosan-calcium chloride solution to form microbeads via ionic gelation. The microbeads are then cured, filtered, washed, and dried. The process allows for the formation of beads with varying sodium alginate and chitosan concentrations, which are suitable for controlled drug release applications. The resulting microbeads exhibit a prolonged release profile, with a drug release ranging from 69.88% to 82.13%, a yield of 74.07% to 83.58%, and a particle size range of 1.15 mm to 1.37 mm. These beads are biologically compatible, non-toxic, and exhibit enhanced antibacterial activity, making them suitable for antimicrobial drug delivery systems. Furthermore, the method enables efficient drug entrapment, with a drug entrapment percentage ranging from 35% to 67%.

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