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Development and In vitro Characterization of Diclofenac-Loaded Microparticles

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Abstract : The present study involves preparation and evaluation of microparticles of diclofenac sodium. The microparticles were prepared by the emulsion solvent evaporation techniques using ethylcellulose polymer. Four different batches of microspheres were prepared by varying the concentration of polymer from 50% to 80% w/w. The microspheres were characterized for drug content, percentage yield and encapsulation efficiency, particle size analysis and surface morphology. Microsphere prepared with high drug content produces higher percentage yield and encapsulation efficiency values. It was observed the increase in concentration of the polymer, increases the mean particle size of the microspheres. The effect of polymer concentration on the in vitro release of diclofenac from the microspheres was also studied. The production microparticles yield showed 98.74%, mean particle size 956.32µm and loading efficiency 97.15%. The results were found that microparticles prepared had slower release than microparticles ($p>0.05$). Therefore, it may be concluded that drug loaded microparticles are suitable delivery systems for diclofenac sodium.

Keywords : diclofenac sodium, emulsion solvent evaporation, ethylcellulose, microparticles
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