

Preparation, characterization, and in vitro release of ketoprofen loaded polymeric microspheres

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Abstract : The purpose of this study was to prepare and to evaluate ketoprofen microspheres fabricated from biodegradable polymers (polylactic acid and polylactic-co- glycolic acid) by oil in water solvent evaporation method in different ratios of drug to polymer. The prepared microspheres were evaluated for percentage yield, entrapment efficiency, drug loading, drug polymer compatibility and in-vitro release of the drug.

The percentage yields of different formulations were in the range of 81.61% - 96.18% while percentage of drug entrapment efficiency was in the range of 71.62%- 86.40% and found to be higher in case of PLGA based microspheres as compared with PLA based microspheres.

FT-IR spectra of the microspheres showed no interaction between the drug and the polymers.

The release profile of ketoprofen from the different formulations was pH dependent. Lower release was observed in acidic medium while in phosphate buffer, sustained drug release was observed over 24 hours. As the drug to polymer ratio decreased, the percentage of entrapment efficiency and the yield of microspheres increased while ketoprofen release from polymeric microspheres was sustained.

The study concluded that the prepared polymeric microspheres of ketoprofen may prove to be potential candidate for safe and effective sustained drug delivery.

Keywords : Microspheres, ketoprofen, Solvent evaporation method, Polylactic acid, Polylactic-co-glycolic acid.