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FORMULATION AND OPTIMIZATION OF SOLID DISPERSION AS A SUSTAINED RELEASE MATRIX FOR ORAL KETOROLAC TROMETHAMINE

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Abstract

Objective

In the present study, solid dispersion is employed in the formulation of sustained-release matrix particles of KT with chitosan (CT) as a carrier.

Methods

The matrix solid dispersion was prepared in three different ratios of KT: CH (1:3, 1:5, and 1:7) by spray-drying method. The matrix particles were characterized by angle of repose, compressibility, scanning electron microscopic (SEM), FTIR and differential scanning calorimetry. The release profile from the matrix particles was studied at pH 1.2 and 6.8. In vivo biological screening in mice and rats for the analgesics, anti-inflammatory and ulcerogenicity was also performed.

Results

The formation of composite particles was confirmed by SEM. DSC and FTIR spectroscopy analysis suggested an interaction between the carbonyl group of KT and the amino group of CH formed a hydrogen bond. Optimum sustained in vitro release, retained analgesic and anti-inflammatory activities with significantly reduced ulcerogenicity was obtained from the matrix particles (1:7) compared to the parent drug.

Conclusion

KT-CH solid dispersion prepared by spray-drying is useful as a sustained release preparation.

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