International Journal of ChemTech Research
CODEN(USA): IJCRGG, ISSN: 0974-4290, ISSN(Online):2455-9555
Vol.10 No.7, pp 207-217,2017

Solubility Enhancement of Loratadineby Solid Dispersion Techniques

Kundawala AJ*[1], Patel PH[2]

[1]IndukakalpcowalaCollege of Pharmacy, New VallabhVidyanagar, 388121, Anand, Gujarat, India.
[2]A.R. College of Pharmacy & G.H. Patel Institute of Pharmacy, Vallabh Vidyanagar-388120, Anand, Gujrat, India.

Abstract: The present work was undertaken to enhance the solubility of a poorly soluble drug, Loratadine (LRD), using solid dispersion approach. Loratadine, a Class II drug, is a second generation antihistaminic agent, which is used in treatment of allergic conditions like allergic rhinitis and urticaria. Phase solubility study was performed using various concentration of β-Cyclodextrin, Poloxamer 407, PVP K30 and PEG 6000. Solid dispersions were prepared with above carriers in various ratios by kneading method, solvent evaporation method and fusion method. Characterization of the solid dispersion systems were performed, Fourier Transform Infrared (FTIR) spectroscopy and differential scanning calorimetry (DSC), powder X-ray diffractometry (XRD) and Scanning Electron Microscopy (SEM). And solid dispersions were evaluated for drug content, saturation and pH solubility study. The phase solubility studies data indicated that highest solubility was obtained with 10 %w/v of β-CD solution. All the solid dispersions showed superior dissolution as compared to pure Loratadine. However, solid dispersion with β-CD product exhibited highest, the 430 fold, solubility compared to other carriers employed.Solid dispersion of Loratadine showed increased solubility that will further assist in oral dosage forms especially with faster dissolution properties.
Key words: Loratadine, β-Cyclodextrin, solid dispersion, solubility studies.

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