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Abstract

Advanced co-crystallization of Dolutegravir by microwave, ultrasound and supercritical fluid technology for Solubility enhancement.

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Abstract:

Crystal engineering approach is recognized by pharmaceutical scientists as a way of improving and tailoring the physicochemical properties of active pharmaceutical ingredients (API). Co-crystallization provides advanced prospective for changing the API properties by using a much more extensive range of co-crystallizing molecules (co-formers). Co-crystals are crystalline form of substance composed of two or more compounds in the same crystal lattice Dolutegravir is a HIV integrase inhibitor, used in combination with other antiretroviral agents and is BCS-II drug. The major objective of research was to improve of solubility profile of Dolutegravir sodium by co-crystallization with suitable co-formers using microwave, ultrasound and supercritical fluid technology. Benzoic acid, Urea, Oxalic acid, Citric acid, L-asparagine were selected as co-formers on the basis Hansen solubility parameter and pKa difference method

The Co-crystals were evaluated and confirm by FTIR, DSC, SEM, XRD and Polarized light microscopy. Equilibrium aqueous solubility studies were performed for all co-crystals taking Dolutegravir as the control. Amongst various co-formers L-asparagine resulted in co-crystals with highest enhancement (22 folds) in solubility. The results reveals that Microwave assisted technique is more promising than, ultrasound and supercritical fluid technology.

Biography:

Dr Swaroop Lahoti, has completed his PhD in Pharmacy from Dr. BAM University, Aurangabad (MS) India. Presently he is working as Professor and Head, Department of Pharmaceutics, at Y.B. Chavan College of Pharmacy, Aurangabad (MS) India, one of the most reputed Pharmacy educational institutions in India. He has published 47 papers in reputed journals and delivered More than 25 expert talks in National seminars, AICTE sponsored seminars and FDP. He has guided More than 50 students for Masters in Pharmacy and 8 students for PhD. He has three patent applications in Process.

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