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Dissolution testing of nicotinamide cocrystals of a model BCS-Class-II drug

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Pharmaceutical co-crystallization is one of the approaches to enhance the solubility and other physicochemical properties of poorly soluble drugs. Co-crystallization is a pure crystal engineering technique and has been most widely exploited in the past decade. The technique gained popularity because crystalline state is the most preferable form of API on account of its inherent low energy and thermodynamic stability. Nicotinamide or niacinamide is an amide of niacin. It is not only safe and extensively used in man but is also considered the most suitable coformer for cocrystallization when solubility and dissolution enhancement is desired, owing to its hydrophilic nature. The objective of our work was to improve the solubility and dissolution properties of a model BCS-Class-II drug by formulating nicotinamide co-crystal. We evaluated the effect of cocrystallization on the drug solubility and dissolution anticipating a bioavailability enhancement in our future studies. The present study covered preformulation, formulation and *in-vitro* characterization stages of the prepared formulation. The preformulation phase included UV, FTIR and solubility studies. The nicotinamide cocrystals were prepared by coevaporation method and characterized for solubility and dissolution properties. The results indicated improvement in the solubility and dissolution characteristics of the drug when formulated as nicotinamide cocrystal. The promising batches were further subjected to thermal analysis and crystallographic studies to understand the solid state characteristics.

Biography

Kale Mohana Raghava Srivalli is currently pursuing her PhD in Pharmaceutics from IIT (BHU), Varanasi, India. She received her graduation and post-graduation degrees from Osmania University (affiliated colleges). She has a PG Diploma in Patents law from NALSAR University of Law. She has an excellent academic record to her credit and has published 03 international papers in peer reviewed journals. She authored a research paper and received best poster award in the International Conference on Nano Science & Engineering Applications (ICONSEA-2014), JNTU, Hyderabad. Her major areas of interest are cyclodextrin complexation, co-crystallization, solid dispersion, and nanotechnology. Presently she is engaged in research works related to improvement of physicochemical properties of certain BCS class II drugs.

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