Poster Presentation

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Solid form screening of antiepileptic drug Retigabine

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Epilepsy is a common neurological disorder observed in an estimated prevalence of 1% of the world's population. The therapeutic strategy in treating epilepsy involves reducing neuronal excitability. Retigabine (RTG) has been developed as an orally active, neuronal potassium channel opener and with its low solubility and high permeability is identified as a class II drug under the Biopharmaceutics Classification System (BCS) as a water insoluble drug. Hence, enhancing the aqueous solubility is crucial for the dosage to be minimized thus enhancing both clinical (reducing side effects) and commercial aspects. We have approached this issue in terms of polymorphism, cocrystallization adducts including salts, cocrystals and eutectics of RTG. Retigabine exists in three polymorphic forms, two are determined from single crystal X-ray diffraction studies, The third form is less stable and readily converts to the most stable form A. Further, thermal and seeding experiments are performed to determine the stability order among the three polymorphs. Co-cocrystallization of RTG results in a nitrate salt, cocrystal of hydroxy substituted benzoic acids, a eutectic with benzoic acid and the structural aspects of these water soluble adducts have been analysed.

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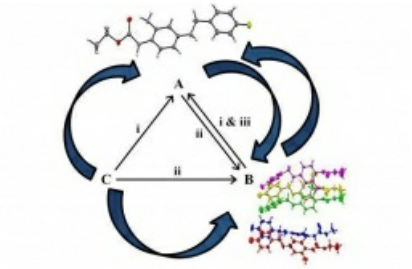

Phase transformations among RTG polymorphs: (i) grinding with seeds (ii) heating (iii) storage

Keywords: Antiepileptic drug, polymorph, cocrystal.