

Generation of hollow crystals of lamellar structure forming drug

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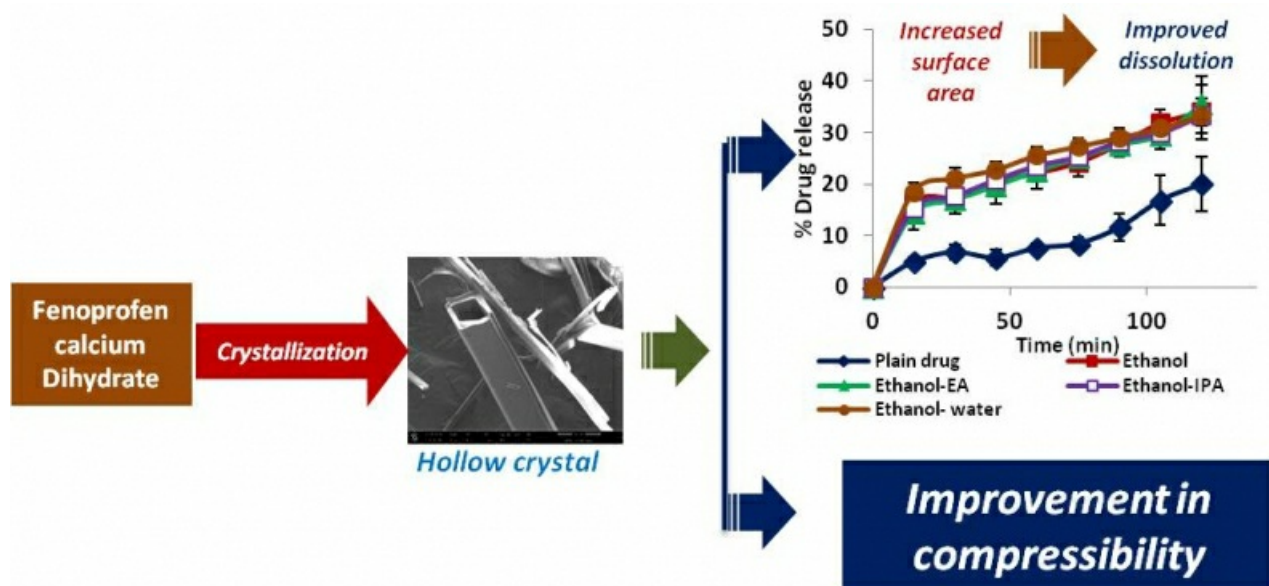
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Hollow crystals are recognized for its higher surface area, which can be exploited for improving the dissolution rate of poorly soluble drugs. To date, no reports have emerged on hollow crystal formation ability of drugs with lamellar structure, although rolling of lamellar structure leading to generation of inorganic hollow crystals is a well documented mechanism. In this work, for the first time, hollow crystals of fenopropfen calcium dihydrate was prepared and characterized. These novel hollow crystals are mostly rectangular in shape with a pore diameter ranging between 2-25 µm as confirmed from optical microscopy and scanning electron microscopy (SEM). Powder X ray diffraction and diffraction scanning calorimetry analysis of recrystallized samples indicate that the drug recrystallizes without transforming into an anhydrate form. The hollow crystals demonstrated increased dissolution rate of drug when compared with unprocessed drug which was attributed to their increased surface area. Unlike plain drug, hollow crystals have shown acceptable plastic behavior during compression studies resulting in tablets at low pressure.

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