Synthesis and Characterization of Gemfibrozil-Trans Cinnamic Acid Cocrystals

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ABSTRACT

Pharmaceutical cocrystals can improve properties such as solubility and dissolution, consequently the bioavailability of poorly soluble drugs can be also enhanced. Gemfibrozil is an antidiolipemic drug that has low solubility and high permeability. For drugs with these characteristics, dissolution rate becomes the limiting factor for absorption. Trans cinnamic acid is a non toxic substance used as a coformer in the cocrystallization process. The aim of this study was to synthesize gemfibrozil-trans cinnamic acid cocrystals (i.e 1:1) by slow evaporation and grinding techniques. The cocrystal formation was confirmed by differential scanning calorimetry, powder X-ray diffraction and infrared spectroscopy. The cocrystals showed a single distinct melting point, the displacement of the carbonyl band and some X-ray diffractogram modifications. The interaction between gemfibrozil and trans cinnamic acid resulted in the formation of new pharmaceutical cocrystals with a potential for improving the solubility of this drug.

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REFERENCES