

Abstract

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Title of Thesis: Study of influence of hydrophilic carriers on the
 dissolution rate of a BCS II drug

The aim of this thesis was to study the effect of mixing and co-milling with hydrophilic carriers on the dissolution rate of a model BCS II drug meloxicam. The mixtures of two different drug loads (1-1, 1-8) were characterized for granulometric and dissolution parameters. USP-4 apparatus assembled with a flow-through powder cell (an open loop) was used to estimate meloxicam relative dissolution rate r_{rel} (min^{-1}). Mixing with lactose, particularly in a higher ratio, increased the relative dissolution rate in comparison to the pure meloxicam. The effect was further increased by co-milling, but an unfavourable event of agglomeration occurred, especially for the 1-1 drug-excipient ratio sample. Adding chitosan solved this problem due to the formation of interactive mixture. The co-milled sample containing chitosan and lactose in a 1-8 ratio showed the highest $r_{rel} = 0.48 \text{ min}^{-1}$.