ABSTRACT

Studies on the influence of Avicel PH 101 as adsorbent in the dissolution rate of curcumin in solid dispersion with PEG 8000

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Curcumin is the main pharmacological active compound from the Curcuma longa. Based on its poor aqueous solubility and intestinal permeability curcumin can be classified as a BCS Class IV molecule, so that dissolution rate is the limiting step of drug absorption process and determines bioavailability of oral drug administration. Solid dispersion could enhance dissolution rate of curcumin.

The objective of the present investigation was to study the influence of adsorbent in solid dispersion on dissolution rate of curcumin. A combination of solvent method and adsorption techniques was employed for the preparation of solid dispersion. PEG 8000 was used as hydrophilic carrier and Avicel PH 101 was used as an adsorbent. The system were prepared using drug : carrier : adsorbent ratio 1:1:2. Evaluation were carried out by dissolution test. The result than compared between curcumin–PEG 8000 solid dispersion, curcumin surface adsorption in Avicel PH 101, physical mixture of curcumin-PEG 8000-Avicel PH 101, and curcumin substance.

The dissolution rate and dissolution efficiency of curcumin in solid dispersion combination with adsorbent was significantly higher than curcumin–PEG 8000 solid dispersion, curcumin surface adsorption in Avicel PH 101, physical mixture of curcumin-PEG 8000-Avicel PH 101, and curcumin substance.

Key words: Curcumin, solid dispersion, surface adsorption, PEG 8000, Avicel PH 101, dissolution